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GYNÆCOLOGICAL NURSING



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GYNÆCOLOGICAL NURSING

BY

NETTA STEWART

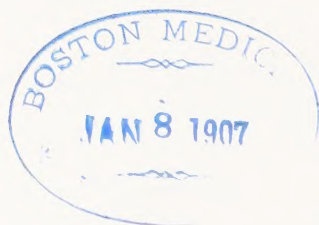
SISTER IN THE EXTRA-MURAL GYNÆCOLOGICAL WARDS OF THE
ROYAL INFIRMARY, EDINBURGH



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To
FRANCES ELIZABETH SPENCER
SUPERINTENDENT OF NURSES, ROYAL INFIRMARY
EDINBURGH, THIS BOOK IS
RESPECTFULLY
Dedicated

PREFACE BY SIR HALLIDAY CROOM

M.D., Etc.

IT is a special pleasure to me to commend this volume most cordially. It seems to me to fill an obvious want, and brings credit to the Nursing School to which the authoress belongs. In many respects it is unique, and it is throughout useful and practical.

PREFACE

IN submitting this volume to my fellow-nurses, I have endeavoured to give as briefly as possible the result of the experience of ten years as head nurse in the Extra-mural Gynæcological Wards of the Royal Infirmary, Edinburgh.

To Sir Halliday Croom, my "Chief" for eight years, and to Dr Barbour, who was so long associated with him, my most grateful thanks are due for help and instruction which have proved invaluable to me.

I have also to express my thanks to Dr Berry Hart for reading over the proofs; to Dr George Robertson (late Resident Surgeon, Ward 36, for ready help in many difficulties; and to Nurse Katharine Hewetson, for literary revision and corrections.

I am indebted to Mr Gardner for kindly lending me his woodcuts.

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GYNÆCOLOGICAL NURSING

CHAPTER I

THE EXAMINATION OF PATIENTS

IN Gynæcology the nurse has to deal with cases in which disease has affected the external and internal female organs of generation.

As, however, the rectum and anus, the bladder and urethra, are all closely connected with the genital organs, not only anatomically, but also in the frequency with which they become involved in diseases, the gynaecologist often finds it necessary to treat these organs when they share in the affection of the genital tract. Accordingly, the gynaecological nurse must be prepared for the care of all such cases.

When a patient presents herself complaining of certain symptoms, which point to disease of the pelvic organs or to affections of the external genitals, the gynaecologist generally finds it necessary to examine her. Before this can be done, the nurse must prepare her in such a manner as to

enable the gynaecologist to make a satisfactory and reliable examination, and at the same time, minimise the discomfort to the patient.

Should a patient at the time of examination have the bladder distended and the rectum loaded, the vaginal canal into which the gynaecologist's fingers are inserted for the purpose of detecting disease higher up or lower in the pelvic cavity, has its calibre much encroached upon, and, accordingly, the examination is rendered more difficult to the gynaecologist and more painful to the patient than would be the case if the bowel and bladder were previously emptied. Moreover, as will be referred to further on, a loaded intestine may often be a source of uncertainty and in some cases of actual fallacy in diagnosis.

An examination may be conducted by sight, by touch, or in some cases by both. In the process, instruments are often used, in which case special preparation of the patient is necessary.

Before giving in detail the various methods of examination, a knowledge of which will give the nurse an intelligent idea of the preparations necessary for each, it is only right to mention certain well-known facts, which interfere with or make the process undesirable. In this respect the age of the patient is an important point. No young girl or unmarried woman is examined by inspection of the external genitals or by the vaginal method, unless under an anæsthetic. In these cases the alternative is an examination "per rectum," when an

anæsthetic, except in the case of the very young, is not given.

A simple abdominal examination, including inspection, palpation, percussion, and auscultation, may be made on any patient however young.

Married women may be examined by any of the methods (*see* page 4) without the use of an anæsthetic, which is only necessary when the patient's nervousness or sensitiveness makes the process difficult and unsatisfactory. Thus, for example, rigidity of the abdominal wall greatly interferes with the bimanual examination, and, in some cases, this difficulty can only be overcome by the anæsthetising of the patient.

The question of vaginal discharge is also of importance. There is nothing in the presence of leucorrhœal (white) hæmorrhagic or purulent discharge to prevent vaginal examination, provided that proper precautions be taken (*see* page 7).

In *all* cases, however, *menstruation must postpone interference*, no matter how simple the examination required may be.

With regard to this, it is well that a nurse should know that menstruation may begin, quite unexpectedly, an hour or two before the time appointed for the examination. A nurse who has had even a small gynæcological experience will have noticed this premature menstruation occasionally occur on the morning of the day for which the operation had been fixed; and it is doubtless the result of excessive anxiety and fear on the part of the

patient. Let every nurse, therefore, inquire into this matter and make sure that, when her patient is placed on the operating table, no sign of menstruation is evident.

The various methods of examination that a gynæcologist is wont to employ are:—

Simple abdominal examination.

Examination of the external genitals by sight.

(Inspection.)

Simple vaginal examination. (Per Vaginam.)

Simple rectal examination. (Per Rectum.)

Simple bimanual examination. (Abdomino-Vaginal.)

Rectal bimanual examination. (Abdomino-Rectal.)

Recto-Vaginal bimanual examination. (Abdomino-Recto-Vaginal.)

Any of these methods may be employed with or without the use of an anæsthetic. A simple abdominal examination may be made in cases of ovarian tumour, fibroid tumour, etc., but in such cases it usually precedes the bimanual.

Examination of the external genitals by sight is required in cases of urethral caruncle, abscess of the labium, perineal tear, etc., where touch does not afford sufficient information.

Simple vaginal examination is not usually employed alone, but may be used in locating a fistula, etc.

A simple rectal examination is seldom employed alone, except in cases which point to disease of

that part, or, as before mentioned, as a convenient route in the case of a young girl or an unmarried woman.

The bimanual examination is that most generally employed, as it gives the gynaecologist a very great deal of information regarding the pelvic organs. Both hands are employed, the index and usually the second finger of the right hand being inserted into the vagina, while the left hand palpates the lower part of the abdomen. In this way the gynaecologist is enabled to feel any of the pelvic organs. This examination can only be satisfactorily conducted when the abdominal wall is soft and yielding. If the patient be unable to allow the abdomen to become flaccid, an anæsthetic may be required.

The rectal bimanual is of the same nature as the simple vaginal bimanual, except that the gynaecologist's finger is, in this case, introduced into the rectum instead of into the vagina.

The recto-vaginal bimanual is a valuable method of examination, in which the index finger of the gynaecologist's right hand is inserted into the vagina, and the middle finger into the rectum; while the left hand is placed on the abdomen just above the pubes.

Let us now see how the preparation of the patient depends upon the form of examination to be made, and also the variations necessary when discharge is present, or when instruments are to be used.

The parts to which a nurse must direct her attention are the rectum, the bladder, and, in special cases, the vagina and external genitals.

Many women pay no attention to the proper regulation of the bowels. Habitual constipation is by no means an uncommon complaint, and the rectum is consequently very frequently loaded. Such a condition makes the vaginal examination difficult and painful. In addition to this, the fæcal matter in the bowel is frequently in a hard condition forming large scybalous masses. These scybala felt high up in the pelvis through the vaginal roof, may be indistinguishable from certain diseased conditions, and, therefore, to enable the gynæcologist to make a correct diagnosis, the bowel should be thoroughly emptied beforehand. A simple enema is scarcely sufficient, and it is better that a nurse should give in every case a purgative the night before, and follow it by a large soap and water enema on the morning of the day fixed for the examination.

To this routine an exception may be quoted. When a woman threatens to abort—as is shown by a discharge of blood from the vagina during pregnancy, and by the presence of abdominal pain—it is very desirable to prevent any straining on the part of the patient, if complete abortion is to be prevented. In such a case a nurse will be wise, after having satisfied herself as to the nature of the case, to leave the patient's bowels at rest, till she has seen the gynæcologist, and received definite instructions from him.

The condition of the bladder must also be carefully attended to. When distended it is a source

of pain during the bimanual examination; when empty it occupies less space in the pelvis, and, therefore, greatly facilitates the detection of diseased conditions. Accordingly, just before the examination takes place, the nurse must make sure that the bladder has been emptied.

Additional preparation is required in three sets of cases:—

When there is excessive vaginal discharge,
bloody or purulent.

When instruments are to be used.

When an anæsthetic is to be administered.

1. When blood issues from the vagina it indicates that a raw surface is present at some part of the genital tract. This is usually in the cervix or body of the uterus, and such discharge may indicate tumour growth there, or may be a symptom of abortion. As bleeding surfaces are readily infected by sepsis, it is advisable in these cases to give a hot antiseptic douche (*see* Chapter II.), which will cleanse the vagina, washing away all clots and débris, and by its heat help in checking further hæmorrhage.

In the case of abortion, before giving the douche, it is well to cleanse the patient externally by swabs soaked in warm corrosive lotion (1-2000). As in such cases the gynæcologist is often desirous of seeing any clots, etc., that may have been washed out of the vagina by the douche, it is very essential that the lotion should not be thrown away, but kept for examination.

In cases of purulent vaginal discharge, *e.g.*, acute gonorrhœa, the nurse may douche the patient as above, but only with permission from the gynecologist.



FIG. 1.

It often happens that some of this discharge is required for microscopical examination, and if the nurse is not aware of this, she may cause annoyance

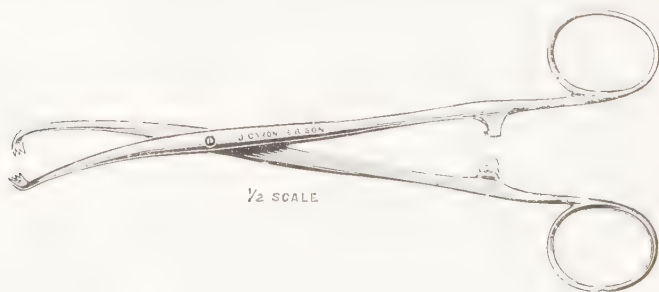


FIG. 2.

in having washed away by the douche the discharge which he may have wished to examine.

The instruments commonly used for a simple examination are the vaginal speculum (Sims'), the

volsellum, and the uterine sound (*see* Figs. 1, 2, and 3). If these are to be used an antiseptic vaginal douche must be given previously, and the nurse must not forget to boil the instruments, afterwards placing them in a basin containing some warm antiseptic lotion, from which the gynæcologist will take them as required.

If the patient is to be anæsthetised, special attention must be given to her food (*see* preparation of patient for operation in perineal repair, Chapter VIII.), so as to minimise sickness during the administration of the anæsthetic and in the recovery from its effects.

A patient may be examined in her own house or at the house of the gynæcologist.

Cases in which much vaginal discharge is present, necessitating preparation by douching, and all cases in which an anæsthetic is necessary, should, if at all possible, be examined in bed.

The nurse must give careful attention to the following points when the gynæcologist is to see the patient in her own home:—

The patient should be in bed, and whether suffering from an abdominal tumour or not, the



FIG. 3.

nurse should take it for granted that a vaginal examination will be necessary. To avoid chilling in the course of a prolonged examination, the room should be warm.

All gynæcologists before and after examining a patient "*per vaginam*," cleanse their hands. For this purpose the nurse should have ready, in addition to plenty of soap and warm water, a small bottle of pure lysol, a small bottle of turpentine, a good nail-brush which has been boiled or allowed to lie in lysol (1-100) or carbolic (1-20) over night, and a small pot of carbolic vaseline.

In cases of cancer of the cervix, etc., where bleeding after examination is frequent and often profuse, and in all cases where the volsellum and sound are to be used, it is desirable that some iodoform gauze and a small packet of sublimated wool should be at hand. A very reliable dressing from an antiseptic point of view, is Linton's moist iodoform gauze, which can be procured in bottles containing 5 yards.

The gauze is used for plugging the vagina in order to arrest further hæmorrhage, and should be removed within twenty-four hours.

The wool may be used as a pad during the examination or as swabs, in which case small pieces are soaked in a basin of warm antiseptic lotion.

If instruments are to be used they should be boiled for half an hour, after which the nurse, having rendered her hands aseptic, should place them in

a basin of antiseptic lotion in which they remain until required.

In handing the volsellum and sound to the gynæcologist the nurse should hold these instruments just above the handle. The speculum should be warm and with the convex surface of the blade lubricated with carbolic vaseline. The concave surface which reflects the light along the vagina should upon no account be lubricated.

When an anæsthetic is necessary, the nurse should have a hypodermic syringe, which is in good working order, charged with ether in case it should be required in the treatment of collapse.

During the examination or after it has been completed, sickness may be present, and therefore a soft towel to wipe the mouth and a small basin or soap-dish should be at hand.

In cases of abdominal tumour where the patient has difficulty in passing urine, it is well to have a catheter ready for use (*see* use of catheter, Chapter V.), as the gynæcologist may wish to make sure that what appears to be a tumour is not a greatly distended bladder.

The positions a patient is generally asked to assume for the purpose of examination are the Dorsal and the Semi-Prone or Sims' posture.

The Dorsal position is assumed to allow of simple abdominal examination, for the bimanual and occasionally for inspection of the external genitals.

The Semi-Prone (Sims') posture is used when it is necessary to introduce instruments into the vagina.

It is also the common posture for simple vaginal examination, and for inspection of the external genitals and perineum.

A patient who has undergone a simple abdominal or a bimanual examination may be asked to turn upon her left side ; but this does not necessarily mean the Semi-Prone posture, which is quite a distinct position by itself.

A patient for examination in the Dorsal posture is prepared in the following way :—

The nightdress having been rolled up all round, the bedclothes with the exception of the sheet are turned down to the foot of the bed so as to be well out of the gynæcologist's way, and thus facilitate manipulation. The sheet is now turned down as far as the pubes, so as to expose the whole surface of the abdomen. This should be done very carefully in order to avoid unnecessary exposure.

The shoulders of the patient should now be slightly raised by means of a pillow placed under them a little above the level of the shoulder blades. This done, she is instructed to draw up both legs by bending the knees, and is thus prepared for abdominal examination.

The raising of the shoulders and the drawing up of the legs are necessary for the relaxation of the muscles of the abdominal wall, which, when tense, form a great obstacle to this mode of examination.

Should an anæsthetic be used, the shoulders must not be raised but rather kept low, as, the patient being in a state of unconsciousness, the muscles relax

without any mechanical aid. For the bimanual examination the covering sheet should not be folded down, and only the right leg of the patient need be drawn up, under which the gynaecologist passes his right hand. The shoulders should be supported as described above, unless the patient is anaesthetised. All manipulation required in the bimanual examination may be satisfactorily conducted under cover of the sheet without exposing even the abdominal wall.

If the external genitals are to be inspected while the patient lies in the Dorsal position, the sheet should be drawn up, and its corners folded over the legs, so as to leave uncovered the thighs and vulva only.

The Sims' posture is of great value in many cases, especially when the gynaecologist wishes to inspect the vaginal walls and the cervix uteri. It is also the posture usually employed for inspection of the vulva and perineum, as, should the patient not be anaesthetised, it causes her less annoyance than the Dorsal posture. If a patient be properly placed in position and the walls of the vagina separated at the orifice, the whole vaginal canal will balloon with air, which rushes in and keeps the walls apart, and when the speculum is introduced the vaginal walls and roof, together with the cervix, will be brought distinctly into view.

The patient is asked to lie Semi-Prone, *i.e.*, turned half upon her face and upon her left side. She is brought close to the edge of the bed, couch, or table, as the case may be. Her left arm is drawn from beneath

her and allowed to hang over the edge of the bed. She is then asked to draw up her right and to straighten her left leg. When thus placed the covering sheet should be folded neatly from behind the patient, so as to expose the external genitals and the back of the thighs. All other parts of the patient should remain covered.

Some gynæcologists in making the bimanual examination wish the patient to lie upon her left side. In this position it is said that the examining fingers of the gynæcologist reach higher up in the pelvis. In such a case the patient is merely asked to turn over from the Dorsal position and lie on her left side with her back to the gynæcologist, and to slightly draw up both legs. As the examination is here one of touch, the patient should be completely covered by the sheet.

The position known as the Lithotomy posture is very commonly used, but only when the patient is anæsthetised. It is nearly always used for the various minor gynæcological operations, e.g., perineal repair, etc., and for a description of the manner in which the patient is placed and kept in this position, the reader is referred to the chapters descriptive of these operations.

It is almost needless to say that, whether the patient be fully conscious or under the influence of an anæsthetic, the nurse must always guard against undue exposure and risk of chill.

CHAPTER II

THE VAGINAL DOUCHE

THE vaginal douche is usually prescribed either for cleansing purposes for the relief of inflammation in the pelvis, or for the arrest of hæmorrhage.

To administer it properly, the nurse requires the following:—a bidet with inflated rubber cushion (*see* Fig. 4), a douche-can with a tap and large enough to hold at least 2 quarts of water, $2\frac{1}{2}$ yards of rubber tubing with a glass vaginal nozzle attached (*see* Fig. 5), a bath thermometer, a pail, plenty of hot water, with any lotion the doctor has ordered, and a little carbolic vaseline.

Everything appertaining to the giving of a douche must be thoroughly clean; and in arresting hæmorrhage, such as that which accompanies or follows an abortion, where the cavity of the uterus may become infected from without, strict asepsis must be ensured.

In one of the gynæcological wards of the Royal Infirmary, Edinburgh, a bidet is used which was made by Messrs Gardner & Son from a special design, and which has been found invaluable.

In external appearance it resembles closely the ordinary bidet, but the internal construction differs greatly from that so long in use (*see* Fig. 6).

The outlet is placed at the side instead of at the lower end. There is a false bottom, consisting of two inclined planes which meet in a gutter running from side to side across the centre of the floor of the bidet.

The gutter is continued through the side of the

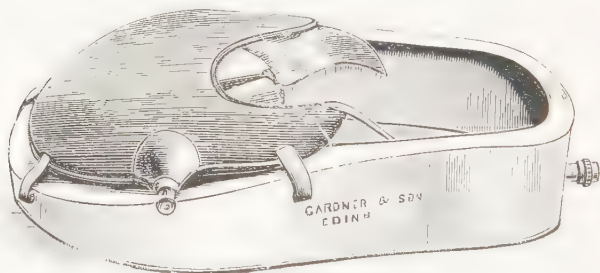


FIG. 1.

bidet into a tube projecting about 1 inch from the side of the apparatus.

To this short tube is attached a brass right-angled tube, which carries off the water or lotion into the pail placed beneath it. It will be readily understood that by this device the bidet cannot overflow, as the water is carried away as quickly as it enters by the outlet tube. A gallon of water will keep an ordinary douche running for about ten minutes.

The temperature required varies with the condition for which the douche is being used.

The usual temperature for a simple cleansing

douche is 110° Fahr.; while, for the relief of inflammation, and for the arrest of hæmorrhage, it is a common practice to begin at 115° Fahr. and gradually raise it to 120° Fahr.

The nurse must always have a plentiful supply of hot and of cold water, so that she may add to the douche-can from time to time, as it becomes empty; the temperature being carefully noted by keeping the thermometer in the can, which should be placed in a convenient position, either standing on a shelf, or hanging on a peg about three feet higher than the patient.

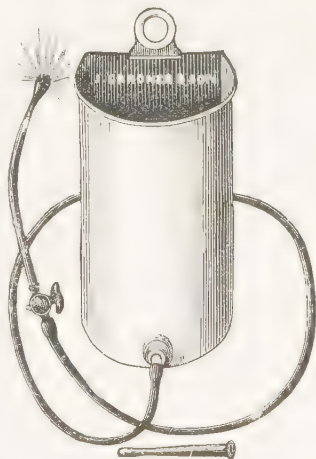


FIG. 5.

When the douche-can requires refilling, it is most

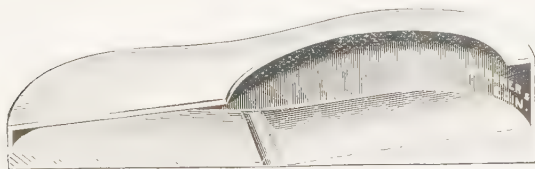


FIG. 6.—Section of Bidet.

important that neither very hot nor very cold water be added while the douche is running. It is only

after the temperature of the contents has been accurately taken that the tap should be again turned on.

If this precaution be neglected one of two things must inevitably happen—either the patient will be chilled by the injection of the very cold water, or scalded, it may be badly, by the very hot.

Everything being ready, the bidet should be placed near the edge of the bed, so that the brass tubing, directed downwards, may reach the pail placed to receive the outflow.

The patient should then be placed on the bidet with the knees drawn up, and all pillows removed, so that the pelvis may be on a higher level than the head.

The tap of the douche is now turned on for a moment, so as to allow a little of the water or lotion to run into the pail; and thus the first volume of water, which becomes chilled in its passage through the tubing, is not allowed to run into the vagina. By this procedure, also, air is not injected into the vaginal canal.

The left hand is now passed under the patient's thigh, and the index finger, previously anointed with carbolic vaseline, gently introduced into the vaginal orifice. As there may be some difficulty in finding the exact position of the vaginal orifice, the following method should be taken:—

Pass the knuckle of the index finger over the perineum from behind forwards till it reaches the orifice, where it will be arrested; then, slowly

straighten out the finger, which has until now been bent up, and it will be found to pass easily into the vagina.

These precautions are taken chiefly in order that the sensitive parts of the external genital organs, which lie to the front, may not be touched.

The vaginal glass nozzle, held in the right hand, is now slipped in behind the introduced finger, which is withdrawn as soon as the nozzle is within the orifice.

The nozzle is then insinuated along the posterior vaginal wall as far as it can go without the use of undue pressure.

The douche-can tap is now turned fully on, and the douche flows—hot water being added from time to time as required, with the precautions before mentioned.

In this way the douche can be kept running for any length of time without having to move or uncover the patient.

It is hardly necessary to add that, on removing the bidet the patient should be well dried and made comfortable; the draw-sheet being inspected to note if any of the water or lotion has run down the cleft of the buttocks and passed between the bidet-cushion and the patient's skin, thereby wetting the bed linen. After cleansing the nozzle, it is advisable to place it in a glass jar containing some antiseptic lotion.

A nurse should always be very careful to add to the douche the exact quantities of any lotion or

powder prescribed by the doctor, and she should also be most accurate with regard to the temperature of the douche, being especially particular that it never exceeds 120° Fahr.

If a patient is once frightened by the injection of too hot water, the nurse will never regain her confidence.

If a douche of a temperature of 115° to 120° Fahr. has to be given for more than ten minutes at a time, the external parts, over which the water flows, should be smeared with oil or vaseline before the douche is begun, thus preventing scalding.

The vaginal mucous membrane can endure a much greater heat than the skin surface, and therefore its protection is unnecessary, even with a temperature of 120° Fahr.

While the process of douching is going on, it is of great importance to have the patient's pelvis on a higher level than her shoulders, in order that the water may reach the cervix and fill the vaginal roof.

A simple washing out of the vagina, while the patient is in a semi-recumbent position, is often useful for purposes of cleanliness, but is of no avail whatever in modifying inflammation of the uterus or its appendages (the ovaries, Fallopian tubes, and broad ligaments).

In all cases, as before mentioned, pillows should be removed and the pelvis raised on the inflated cushion attached to the bidet.

The process of douching should continue for a

period of from fifteen to twenty minutes, or even longer if the patient can bear it.

In circumstances where it is impossible to obtain a bidet, an ordinary bed-pan may be used, the patient



FIG. 7.

being moved from time to time to allow of its being emptied.

A syphon, or a "Rotunda" douche, as it is sometimes called, can also be used, with a ewer to contain the water (*see* Fig. 7).

The ordinary Higginson's syringe, while often sufficient to simply wash away discharge from the vagina, does not admit of a constant stream, and is therefore not adapted for systematic hot douching.

CHAPTER III

THE VAGINAL TAMPON OR PLUG

THE vaginal tampon is generally prescribed for the purpose of relieving inflammatory conditions of the uterus, ovaries, or Fallopian tubes.

It is also a very valuable means of arresting certain forms of hæmorrhage, in which cases it acts as a mechanical plug, by means of which firm pressure is applied, while in relieving pelvic inflammation, it acts through the medicament which it carries.

For application in the treatment of inflammation it is made in the following manner:—

A thin sheet of cotton wool 10 to 12 inches long and 4 to 5 inches broad is taken, and to one end of this a piece of narrow tape is tied. This is generally saturated with glycerine, either alone or containing 10 to 15 per cent. of ichthyol, in the following manner:—

The oblong piece of wool is spread out upon a flat surface, and about $1\frac{1}{2}$ ounces of the medicament poured over it. This done, it is rolled up and twisted into the form of a rope, and, in this way, the medica-

ment is made to permeate every part of the plug, which is now quite ready for use.

To introduce it, the patient is placed near the edge of the bed, upon the left side, with the knees drawn up, so that the right foot rests upon the calf of the left leg.

A thin strip of cotton wool is now wound round the index finger of the right hand, which is then inserted as far as it will go, and by sweeping it all round the roof and walls of the vagina, that canal is swabbed dry.

Holding the palm downwards, the index and middle fingers of the left hand, having been lubricated with carbolised vaseline, are inserted just within the vaginal orifice. The hand is now turned half-round, and the two fingers held apart, thus forming a kind of director.

The index finger of the right hand now inserts the plug between the separated fingers of the left, and when it has all been introduced into the vagina, the fingers of the left hand are withdrawn, and by the index, or, index and middle fingers of the right hand, the plug is pushed onwards as far as it will go into the fornices.

The plug should not be left in the lower part of the vagina, but packed all round the cervix and vaginal roof, so as to be as near to the seat of inflammation as possible.

It is necessary for the patient to use something to protect her clothing and bed from the watery discharge which these medicated plugs cause, and

which, when ichthyol is used, leaves a dark stain. For this purpose a small pad of wool is used and is found to be sufficient

Plugs are generally introduced at night, after the evening douche has been given. They are retained all night, and removed just before the morning douche is administered.

In some obstinate cases, where the constant action of the medicament is necessary, the patient is plugged night and morning.

Instead of the plug just described, the bullet-shaped medicated pessary is sometimes used. It is easily introduced by first placing the patient upon her left side, next inserting the index finger of the left hand as a director within the vaginal orifice, and then with the index finger of the right hand pushing the pessary in as far as it will go.

The plug used as a means of checking hæmorrhage is different from that just described, and is merely employed as a method of applying firm and continuous pressure to a part.

In many cases requiring this treatment the hæmorrhage is profuse, and accordingly the plug has to be made and introduced in a great hurry.

For this, two or three strips of cotton wool are required, and to one end of each of these strips a piece of narrow tape is attached. Several small swabs of wool are now made, and together with the long strips are soaked in either carbolic lotion (1-80) or corrosive sublimate (1-6000).

The patient is now placed upon her left side and

all blood clots are removed from the vagina by the fingers of the right hand. The index and middle fingers of the left hand having been inserted into the vagina as already described, the lengths of wool are first introduced between them and then pushed well up into the fornices. Care must be taken, however, that the tape is not entirely pushed in with the wool, but a small part left visible even when the plug is in position.

The remaining unpacked portion of the vagina is now filled with the swabs, using as many as is necessary to secure a firm plug, but noting carefully the exact number inserted.

It must also be remembered that all lengths of wool and swabs should be well wrung out of the antiseptic lotion before they are introduced. A plug, if properly introduced, will check almost any uterine hæmorrhage, which may be met with in gynæcological work. It is usually removed after a period of twenty-four hours, but can with perfect safety be retained for forty-eight if necessary.

The small swabs which lie nearest the vaginal orifice are removed first, and having ascertained that all that were inserted have been recovered, the lengths of wool are gently withdrawn by means of the pieces of tape to which they were attached.

Another method of packing the vagina for hæmorrhage is that of using what is called the "kite tail" plug. Though seldom seen in hospital, it is very commonly used in private cases. It is made of a number of pieces of wool and a long piece of narrow

tape. The tape is tied round the wool swabs, in such a way as to allow 5 or 6 inches of tape between each. In the same way as before, both tape and swabs should be well wrung out of an antiseptic lotion, and this done, its introduction is effected in the manner described.

The only disadvantage of this plug lies in the length of time taken to properly prepare it, and time is of paramount importance if a sharp hæmorrhage is going on.

The two great aims in packing the vagina for hæmorrhage are, firstly, to lose no time, and secondly, to do the work thoroughly, packing every crevice in order to obtain firm and uniform pressure.

It should be well borne in mind that the nurse, while using these methods to the best of her ability, should send for a doctor immediately in all cases of hæmorrhage.

CHAPTER IV

THE USE OF THE CANTHARIDES BLISTER, ETC.

HAVING described the use of the vaginal douche and the medicated tampon or plug, the reader's attention is now directed to a third agent employed in the treatment of pelvic inflammation and pelvic pain, namely, blistering or counter-irritation.

Six months' experience in a large gynæcological ward will suffice to teach a nurse how common inflammation of the pelvic organs is. She will constantly see patients under treatment for inflammation of the ovaries (ovaritis) of the Fallopian tubes (salpingitis), or of both combined. It may also strike her how very similar the treatment is in all cases where palliative measures alone are adopted.

In private, as in hospital work, cases of ovaritis, salpingitis, etc., are the most common diseases which a nurse will have under her care, and it is for this reason that it has been considered advisable to devote a small portion of this book to the subject of blistering, which, in conjunction with the douche and the plug, well nigh completes the palliative treatment of these inflammatory conditions.

The gynæcologist who attends the patient, may order the nurse to apply blisters at any time between the "periods."

As, however, blistering is usually employed to relieve the pain which, in ovaritis, etc., precedes menstruation by a few days, and which is not relieved until the menstrual discharge becomes profuse, the nurse will find that blistering is limited by many gynæcologists to these days.

Usually, in this disease, both ovaries, etc., are inflamed, but the left ovary, left Fallopian tube, etc., are much more frequently affected than those upon the right side.

Accordingly, many patients are blistered upon the left side only, but, in relieving the pain alluded to, it is often desirable to apply a blister to both sides, one over each ovarian region.

The shape of the blister is of little importance. Its size, however, is limited, and in all cases the nurse must find out from the gynæcologist what this is to be.

A square of $1\frac{1}{2}$ inches, or a round the size of half-a-crown are sizes very often ordered. It is also well that a nurse should know the exact region where the blister is to be applied.

The spot where the patient feels the pain most acutely is invariably the best guide as to where the blister should be put. This area—called the ovarian region—is familiar to all nurses of experience, and lies about 2 inches below the level of the umbilicus and about $2\frac{1}{2}$ inches from the middle line.

In a great number of cases, the gynæcologist will assist the nurse by marking upon the skin with a blue pencil the exact area over which the blister should be applied.

The cantharides blister of the required size is applied as follows:—

The skin is first washed with soap and water, dried, and then rubbed over with a little turpentine or sulphuric ether, poured upon a swab of cotton wool.

The “face” of the blister, *i.e.*, the black surface which will lie in contact with the skin, is then lightly lubricated with a little oil or vaseline. This lubricating is one of the most important points to be observed in the application, and for two reasons. It acts as a solvent for the active substance of cantharadin, extracting it from the blister, and keeping it in close contact with the skin. It also causes adhesion between the “face” of the blister and the surface to which it is applied—at the same time preventing it from attaching itself too firmly to the bleb when formed.*

After being applied it is kept in position by two narrow strips of adhesive plaster which are placed so as to cross one another.

Having remained in contact with the skin for eight hours, the blister will, as a rule, have “risen.” By “rising” is meant the formation of a bleb containing a clear watery fluid known as blood serum.

* If too much oil or vaseline be put on, the blister will not “rise” at all, because the contact will not be close enough.

After eight hours, therefore, the plaster strips are detached and the blister carefully raised and removed. The nurse should now take a pair of thoroughly clean scissors and cut into the bleb. This should be done at its most dependent part, in order to allow the fluid to escape entirely.

The part of the bleb incised will, therefore, be that nearest the groin of the patient. The nurse must now begin to treat the blistered surface with care in order to allow it to heal. As a dressing, a piece of surgeon's lint—larger than the surface to be dressed—is taken and spread all over thinly with zinc or boric ointment. Every part of the lint should be spread so that should the dressing slip a little, it will be almost impossible for the edge, which many nurses leave dry, to stick to the irritated surface.

To remove still further the chance of any adhesion between the lint and the skin, it is a good plan to drop a little antiseptic oil over the ointment when spread, and before applying the dressing. Should the blistered surface require cleansing, the nurse must always use oil for the purpose. The marks left upon the surrounding skin by the strips of plaster may be removed by a little sulphuric ether upon a wool swab. Here, however, the nurse should be careful to prevent the ether from touching the healing surface and causing the patient pain, and this may be effectually prevented by keeping the blistered part completely covered by the dressing while the ether is being used.

The dressing should be changed twice daily—night and morning—and continued until the surface is quite healed.

Attention to the “rising” of the bleb is important, and the blister should not be allowed to remain over the bleb when it has appeared. If carelessly left on, the serum, which is so easily got rid of by a snip with a pair of scissors, coagulates, and cannot escape from the small opening which the nurse makes in the raised-up epidermis. The result of this is, that the whole of the epidermis over the coagulated serum must be removed, and in consequence a nasty raw surface is exposed which takes a long time to heal.

CHAPTER V

THE USE OF THE CATHETER

AMONG the duties of the gynæcological nurse, one of the most important is that of passing the catheter.

The nurse should observe the utmost care in the use of this instrument, in order that she may not infect the bladder and cause cystitis—a condition, which, if once produced, may be very persistent, and even dangerous to life.

Accordingly, the catheter itself, the hands of the nurse, and the external genitals of the patient, should be surgically clean and aseptic.

Any catheter that can be boiled may be used. A gum elastic or soft rubber male catheter (No. 8 or 9) is very good, but the ideal instrument is one made of glass with 4 or 5 inches of rubber tubing attached to the end of it, so that the urine may more readily run into the vessel provided for it.

Catheters should always be sterilised before they are used, and after use they should be carefully cleansed by syringing the channel, first with carbolic lotion (1 to 20), and then with hot water, special

care being taken with the eye of the instrument, as it is there that débris is so apt to accumulate.

After having been thoroughly cleansed, the catheter should be put into a covered glass dish containing an antiseptic lotion, and kept there until it is again required.

If the catheter is of glass or of soft rubber, it may, with advantage, be kept in carbolic lotion (1-20).

In the case of the gum-elastic instrument, however, it must be kept in boracic lotion, as the carbolic has such a destructive effect upon it that it is rendered unfit for use in a few hours.

If a catheter has been used in a non-infective case, *e.g.*, to draw off the urine of a patient who has undergone an operation such as ovariectomy, where no bladder trouble exists, it can be cleaned, boiled, and put away for future use.

On the other hand, if it has been in use for a long time, and especially in any infective case, such as septic cystitis, it should be destroyed when no longer required.

The present-day method of passing the catheter differs essentially from that employed for so many years.

In hospital as in private cases, it was the custom to pass the catheter, "by the touch," the passing "by sight" being adopted only in difficult cases, where the exact position of the urinary meatus was difficult to determine. The exposure of a patient for the sake of passing a catheter was

considered then to be indicative of want of skill and experience on the part of the nurse.

When one considers how very dangerous this method of catheterisation was, one can easily understand how the catheter came to be looked upon as a dangerous instrument. In the old method the hands of the nurse were clean, the catheter was boiled and sterile; but to avoid exposure the external genitals of the patient were cleansed under cover of a sheet or blanket, and this part of the proceeding could not therefore be satisfactory.

Moreover, one can easily understand how the point of the catheter, before reaching the meatus, might come in contact with the covering of the patient, etc., and thus carry infection into the bladder.

A nurse engaged in this particular branch of nursing, should make it her great aim never to offend a patient, and never to cause unnecessary exposure; but, when the question resolves itself, as it does here, into cystitis or no cystitis, there should be but little hesitation on the part of any nurse as to what course she should take, even though she may find it necessary to explain to her patient the why and wherefore of it all.

The catheter should always be passed "by sight," and in the following manner:—

The nurse, having made her hands surgically clean, and having prepared a catheter in the manner described above, must place the patient upon her

back with the knees drawn up—a suitable vessel being at hand to receive the urine when withdrawn. By placing the index and middle fingers of the left hand in the cleft of the vulva, and then separating them, the labia majora and minora are drawn widely apart, thus exposing the smooth triangular surface called the vestibule, which, when the parts remain undisturbed, is completely hidden.

About the middle of the base of the triangle an elevation exists, and upon this the urinary meatus can be seen as a vertical slit.

At this stage the vestibule and meatus are carefully cleansed by swabbing with carbolic lotion (1-40), or with corrosive sublimate (1-2000), or lysol (1-100), this being done, of course, by the right hand, which is free. Then, by the same hand, the catheter is inserted within the meatus and pushed onwards into the bladder as far as it will go, without using undue pressure.

It is a common practice to use as a lubricant an antiseptic oil or vaseline; but, if one cannot be certain that the lubricant is aseptic, it is better not to use any—the passage of the catheter without it, being neither a difficult process, nor painful to the patient.

It is very important that the labia majora, having been separated in the manner described, should be kept apart until all the urine has been withdrawn and the catheter removed.

The urine is allowed to run steadily into the vessel until it begins to come in drops, and then

the catheter is drawn out a short distance allowing the urine to flow once more till it again comes drop by drop. The catheter is now withdrawn, first taking care to place the thumb tightly over the end of the instrument or to press the tubing between the finger and thumb as the case may be. By so doing, the urine in the channel of the catheter cannot escape upon the surface of the genitals, or upon the bed clothes.

N.B.—If, in the act of introducing the catheter, it should slip into the vaginal instead of into the urethral orifice, the nurse must not again attempt to pass it until it has been thoroughly cleansed.

CHAPTER VI

TO WASH OUT THE BLADDER

THE washing out of the bladder is a form of treatment often required for the alleviation of cases of cystitis which have resisted ordinary medical treatment.

It is also a common and very important part of the after-treatment of operations upon the bladder itself, *e.g.*, after the repair of a vesico-vaginal fistula. (*See* Chapter IX.)

The instruments necessary for the purpose of washing out the bladder are: a large sized catheter (No. 10 or 11) and a Higginson's syringe, the latter fitted with a fine pointed nozzle, preferably of metal, in order to allow of its being boiled. The antiseptic in general use, and which may be employed with most safety, is boracic lotion (1-40) of which two or more quarts will be required. The temperature should not exceed 100° Fahr., which is that commonly employed.

Before proceeding to inject the lotion into the bladder, it is necessary to pass the catheter and draw off the urine in the manner described in the

previous chapter. The catheter itself, however, is not withdrawn, as it is now that the pointed nozzle of the syringe is connected with it.

Note specially, however, that before the nozzle of the Higginson be connected with the catheter, it is absolutely necessary that all air should be expelled from the syringe. This is done in the usual way by giving the ball of the syringe several compressions, while both the nozzle and the valve end are kept well down in the basin of lotion about to be used.

This precaution having been taken, the nozzle is carefully connected with the catheter and the lotion slowly injected into the bladder, until the patient is conscious of a desire to micturate.

If a Higginson's syringe is in perfect working order, one compression of the ball will inject an ounce and a half of lotion.

Knowing this, the nurse in washing out the bladder can calculate approximately how much lotion has been injected, by observing how many times she has compressed the ball of the syringe. When the bladder has been filled to the greatest extent the patient can bear, the injecting must cease, and the lotion, having remained for a number of seconds, is allowed to flow back by disconnecting the nozzle of the syringe from the catheter.

After all the lotion has escaped and the bladder become empty again, the process is repeated not less than six times and oftener in cases in which the lotion persists in returning turbid, when it

should be continued until it is returned perfectly clear.

Sometimes, in a case of acute cystitis, to inject more than an ounce or two of lotion into the bladder at a time causes the patient extreme pain, and then it is most interesting and satisfactory to watch how, as improvement goes on from day to day, the patient can retain more and more of the lotion, until she can bear to have 12 or even 14 ounces injected.

It is a very good plan to engage the patient in conversation and so try to divert her attention from what is taking place. In this way, especially when she is of a nervous temperament, it will be found that the operation can be carried out much more successfully, inasmuch as the nurse will often be able to inject a much larger quantity of lotion into the bladder than would have been possible had silence been maintained, for then the patient's whole attention would have been centred on the proceedings.

It should be remembered that a certain amount of pain is unavoidable, as it is only by stretching somewhat forcibly the bladder wall that the lotion can get into the depressions between the folds of mucous membrane, and it is only when this is effected that a speedy cure can be looked for.

CHAPTER VII

CURETTAGE OR CURETTING

THIS is probably the commonest operation in gynaecology, but though simple in its nature and of everyday occurrence, it entails no small responsibility on the part of the nurse.

Sepsis, following such an operation, rarely endangers life, but is a fruitful source of mischief in the ovaries and Fallopian tubes, and may cause the patient great misery.

Curettage is performed to relieve excessive discharge of blood at the menstrual period in the disease known as endometritis, where an unhealthy mucous membrane lines the uterus; also to remove small pieces of membrane that have been retained after an incomplete abortion has taken place; and sometimes also to stimulate the contraction of the uterus when small fibroid tumours exist there causing hæmorrhage.

There are many other conditions for which this operation is performed, but the above are among the most common.

In the operation, the mucous membrane of the

uterus is removed, and, accordingly, a raw surface left, which may become septic and give rise to much mischief. For this reason, the patient should be prepared by douching the vagina twice daily with an antiseptic lotion for two days before she is operated upon.

The patient's bowels should be made to move thoroughly by giving her castor oil the night before, and an enema on the morning of the operation. In addition, she is instructed to empty her bladder just before being removed to the operating room.

The same preparations for the administration of the anæsthetic are adhered to, and the clothing of the patient in no way differs from that worn for the operation of perineal repair and other vaginal operations. The Lithotomy posture is also generally assumed, and a Kelly's apron used to protect the sheets and the clothing of the patient.

All instruments to be used are boiled for half an hour and then laid out in a tray containing carbolic lotion (1-80) in a quantity sufficient to cover them.

In the first part of the operation graduated metal dilators or bougies are used to dilate the cervix before the uterus can be entered by the curette or scraper.

These dilators have their numbers stamped upon them, the smallest used in an ordinary case being No. 8, and the largest No. 18. It is a good plan to arrange these instruments in order before the operation begins, so that the operator can quickly pick up

and introduce one after another without stopping to look at the size.

The Fritsch's double catheter is used to wash out the uterus after the scraping is over, and this instrument should be in a state of perfect surgical cleanliness. In this operation also the "dressed" sound is used and should be got ready beforehand. Two such sounds are required; one to swab out the uterine cavity, and the other to apply the required caustic to the raw surface for the purpose of arresting hæmorrhage.

The sound is dressed thus:—a very thin layer of cotton wool is taken and laid flat upon the palm of the left hand. The uterine sound, previously boiled, is then dipped in an antiseptic lotion in order to make the wool adhere firmly to it. Holding the sound in the right hand, the film of wool is then wound round it, beginning at the tip of the instrument which is then rapidly and firmly twisted round and round, the left hand being firmly closed over the point of the instrument until it is covered with a hard layer of sufficient thickness to increase the calibre of the sound to that of a No. 9 or 10 bougie.

In dressing a sound which will be applied to the raw surface inside the uterus, it is absolutely necessary that it should be done with hands surgically clean.

The caustic most commonly used is pure carbolic acid (phenol), and a bottle of this should be at hand into which the nurse can dip the dressed sound

when it is asked for, at the same time handing to the operator a small piece of dry sublimated wool, which is packed into the vagina behind the cervix, to prevent the acid from injuring the vaginal wall, when it returns in excess from the cervix. Some surgeons prefer iodised phenol, which is used in precisely the same way.

The operator will then ask for iodoform gauze with which to pack the uterine cavity, and the piece handed by the nurse for this purpose should not be more than 1 inch in breadth when folded, and should be cut beforehand to avoid unnecessary handling and delay. Broader strips of iodoform gauze are used to pack the vagina, after which the nurse will thoroughly dry the patient's buttocks and back before allowing her to be removed to bed.

The lotions used for the douche are lysol (1-100) and corrosive sublimate (1-5000)—the former for the vagina, and the latter for the uterine cavity.

The nurse who holds the douche-can must know that, when the uterine douche is being given, it should run very slowly, and, therefore, it is always necessary to hold the can just a little above the level of the patient's hips.

For the vaginal douche, however, it is held high, as there is no danger in the force with which the lotion fills that canal.

The after treatment is simple, and consists of removing the vaginal and uterine plugs of gauze, and keeping the vaginal canal clean by antiseptic douching.

The plug is left in the uterus for a length of time varying from twenty-four to thirty-six hours, after which the patient will often begin to complain of colicky pains in the lower part of the abdomen—due to the efforts of the uterus to expel the plug. That in the vagina is removed first, then that in the uterus slowly, so as to avoid tearing the plug and leaving a part behind. A vaginal douche of lysol (1-100) is then given.

Everything used for such a douche must be perfectly aseptic, and the vulva should previously be cleansed by swabs of wool soaked in an antiseptic lotion. It is here very advisable to separate the labia, and insert the nozzle of the douche by sight. A fresh piece of iodoform gauze is then inserted into the vagina, and allowed to remain there for twenty-four hours, after which it is removed and another douche given.

Very little bloody discharge should be present after curettage. If it be excessive, the nurse should inform the surgeon.

Plugging is only necessary during the first three days after operation, but the antiseptic vaginal douche is continued for the rest of the week.

At the end of this time the patient may be allowed out of bed, but should not attempt to walk for another week.

CHAPTER VIII

THE NURSE'S DUTIES BEFORE AND AFTER THE OPERATION OF PERINEAL REPAIR

THE repair of the perineum is an operation which a hospital nurse in a gynæcological ward will witness frequently, and in no small way does success depend upon the preparation of the patient before, and upon the treatment after, operation.

From its close proximity to the anus, and from the fact that, in the majority of such cases, the parts are constantly bathed in secretion, the perineum, or what remains of it, is a very difficult part to thoroughly cleanse and render aseptic, as is also the lower part of the vaginal canal.

Bad results can often be traced to sepsis, and knowing these facts, the nurse must exercise every care in her preparation and after-treatment.

Accordingly, the patient should be douched twice daily for several days before operation with an antiseptic lotion, and if there be an excessive white secretion from the vagina, it will be necessary to pack it loosely every night with iodoform gauze.

The parts are shaved when the patient is under

the anæsthetic by the assistant operator. This duty rarely falls to the nurse to perform.

The nurse must also take great care with regard to the condition of the bowels, as it is very important in this, as in all operations in gynecology, that the bowels be quite empty.

To effect this, an aperient is given on the night before the operation, and followed by a large soap and water enema in the morning.

The last antiseptic vaginal douche should be given just before the patient is placed upon the operating table.

The patient should be clad in a nightgown and a warm flannel jacket. A pair of white woollen stockings, long enough to reach half way up the thighs should be worn; and in this, as in all operations where the patient is in the Lithotomy position, long linen stockings, sterilised by steam, should be put on above the woollen ones. When this is done, the operator or nurse may touch the linen stockings without infecting his or her hands.

The sterilised stockings, however, should not be put on until the patient has been brought to the end of the table in the Lithotomy position, and this, of course, is only done when she is completely under the influence of the anæsthetic.

A Kelly's rubber apron (*see* Fig. 8) is placed at the foot of the table. Upon this apron the hips of the patient rest, care being taken that none of her clothing is pulled down into it. It is used to protect the coverings on the table, and if it has been

properly placed, the sheets and the patient's clothing can be kept perfectly dry and clean.

The rubber apron should, after each operation, be cleansed by scrubbing with soap and water. Any discoloration may be sponged off by a saturated solution of oxalic acid (salts of sorrel). If the apron has been infected by pus, etc., it should be cleaned with swabs of cotton wool soaked in corrosive lotion (1-1000), and then hung up to dry.

All instruments to be used should be thoroughly

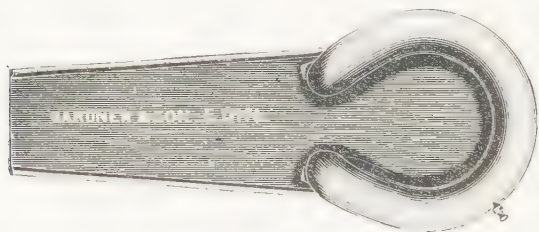


FIG. 8.

clean and boiled for half an hour. About two dozen small gauze swabs which have been sterilised, and three or four towels also sterilised should be ready. A plentiful supply of hot and cold sterilised water should be at hand, and also carbolic (1-80) or corrosive lotion (1-4000) for the douche.

The care of the bladder and bowels, the cleansing of the vagina and adjacent skin surfaces, the special stockings, the use of Kelly's apron and the position of the patient known as the Lithotomy posture, are

all now considered necessary for the various minor vaginal operations.

There are various ways in which the patient's limbs can be supported and separated, so as to cause the operator as little inconvenience as possible. In hospital, where the necessary number of assistants can be obtained, each leg is supported by a nurse, and in the following definite way.

Each thigh is first pulled up upon the abdomen, and the knee is then flexed, so that the heel of the foot almost touches the back of the thigh. The nurse now takes the knee tightly under her axilla, and leans slightly backward upon the limb.

By this method not only is the limb kept well out of the way, but the hands of the nurse remain free to hold instruments and attend to the douche when required.

The second method is that in which "rests" (*see* Fig. 9) are used to support the legs. This is often used in hospital, but not nearly so frequently as the first method described.

A third method may be employed in the use of Clover's lithotomy crutch (*see* Fig. 10). Though seldom seen in a gynæcological ward, it is often used in private cases, when only the operator, the anæsthetist, and one nurse are present.

By this crutch the patient holds herself in the Lithotomy position. It tends to embarrass the respiration however, and is not the most desirable form of apparatus for the purpose.

It will thus be easily seen that no form



FIG. 9.

of apparatus can give as much freedom to the operator as the holding of the limbs by two nurses, who can vary the patient's position at will.

When the dressing, which is usually iodoform gauze, has been applied over the wound, a small pad of dry corrosive wool is placed above it. This is held in position by the patient's legs, as when in bed the knees are immediately bound together, or a T-bandage may be used.

Before leaving the operating table the hips should be thoroughly cleansed of all blood stains, and carefully dried with a towel.

When in bed, a small pad of wool should be



FIG. 10.

placed between the knees, so as to avoid causing

the patient the discomfort which would result from the pressure of the bony prominences of the knees upon one another.

A towel is the best means by which to keep the limbs together, and it should cover an area extending from about 4 inches above the ankle to about 3 inches above the knee joint. It should be fastened, not too tightly, by means of safety pins running parallel to the edge of the towel. A towel, applied in this way, is much more comfortable than a bandage round the knees.

The patient need not be kept lying entirely upon her back, though this is the most desirable position when possible. She may be eased from time to time by being gently turned upon her side by the nurse. She must not be allowed to turn of her own accord in bed; for by so doing the stitches may suffer, and the edges of the wound drawn apart.

The diet must be carefully studied for some time subsequent to the operation, and as the bowels should not be allowed to move for a week, it should be confined to liquids such as thin soup, beef-tea, etc., in order to give the minimum residue.

It is a great mistake to give too much milk, as it leaves a correspondingly large residue, as is well seen in the treatment of Bright's disease where the diet has been restricted to milk. An aperient, usually castor oil, is given at the end of the week, but is with great advantage preceded by an enema (4 ounces) of warm olive oil. This being so small and of a non-irritant nature, can easily be retained

by the patient until the aperient begins to act, and has the effect of softening the faecal matter in the lower part of the bowel, which is at the end of a period of seven days often so hard as to be liable to cause injury. Thus the bowels are moved with comparative ease to the patient, and undue pressure and tension on the stitches avoided.

A warm antiseptic vaginal douche should be given slowly twice daily, and after each douche the vaginal walls should be carefully dried by means of small swabs of cotton wool, held and introduced by a pair of dressing forceps; or the nurse may use instead, the index finger of the right hand round which a thin layer of sublimated wool has been wound.

The skin at the edges of the wound should also be carefully dried, and then a strip of iodoform gauze is taken, moistened in an antiseptic oil (*e.g.*, eucalyptus oil (20 per cent.) in olive oil), and carefully introduced into the vagina. A similar piece of iodoform gauze should then be applied to the skin surface with a pad of wool over all.

The catheter must be passed every six hours, until the aperient is given, after which the patient is allowed to pass her urine naturally.

All manipulations on the part of the nurse should be carried out very gently, lest any injury be done to the stitches.

If all these precautions be taken—*i.e.*, attention to the movement of the bowels—to the withdrawal of urine by the catheter, etc.—if, above all, the rules

for asepsis be strictly adhered to, it will be found, as has been the writer's experience, that a bad result from this plastic operation is of *very* rare occurrence.

In exceptional cases, where the part has become septic, thus necessitating the removal of the stitches, the gaping unhealthy wound must be treated with great care and persistence, in order to restore it to healthy action, and allow it to heal by granulation and cicatrisation. If the rectum has been involved, the patient's condition becomes as distressing as it was before the operation was attempted; but if the tear has not included the bowel, the perineum will slowly heal, and eventually some good will accrue.

CHAPTER IX

THE OPERATION OF VESICO-VAGINAL FISTULA REPAIR

THERE are few gynæcological conditions requiring more careful treatment than is required before and after the operation for vesico-vaginal fistula.

The condition is one in which there exists a communication between the bladder itself and the vagina, and an operation is undertaken to close the opening.

These patients come to the gynæcological wards with a history of having been unable to retain any urine for weeks or even months; and that being so, one is not surprised to find the urine foul, and the bladder and vagina in a very septic state. Miserable as such a woman's life must be, it is rendered more so by the presence of extensive inflammation and excoriation of the skin of the external genitals and inner sides of the thighs, caused by the constant passage of urine over these surfaces.

It must be remembered that all cases are not so severe as that just described; but many, unfortun-

ately, have reached this miserable stage before proper advice is sought.

It is well-nigh useless to operate until the parts are all in a clean and healthy condition, and it will be the nurse's duty to exercise all her skill in bringing this about with as little delay as possible. To do so requires much perseverance.

From what has been said above, it will be understood that the three structures to be carefully attended to are the skin surfaces, the mucous membrane of the vagina, and that of the lining of the bladder.

The skin surface should be gently mopped with swabs made of cotton wool soaked in boracic lotion, until all foreign matter has been removed, after which it is gently dried by means of a soft gauze swab.

To promote the healing of any areas of ulceration or excoriation, a weak solution of nitrate of silver (grs. v.- $\bar{3}$ i. of distilled water) is carefully applied over the raw surfaces. After this an antiseptic oil (eucalyptus oil (20 per cent.) in olive oil) is now smeared over the dry clean surface of the skin.

In the worst cases of skin affection, much comfort will be given to the patient by the insertion of pieces of soft lint, moistened with the oil just mentioned, between the cleft of the buttocks and the thighs, thus preventing the inflamed skin surfaces from rubbing against one another.

As with the skin surface so with the mucous membrane of the vagina. A slight amount of friction is

necessary to ensure the removal of all septic matter—urine salts, etc., so the walls are first cleansed by swabs introduced by a pair of dressing forceps and gently twisted round. An antiseptic vaginal douche is then given to complete the cleansing. Excoriations are treated with silver nitrate in the same way as the skin surfaces. The douche must in all cases precede this application; should it follow it, the caustic substance will be almost entirely washed away.

The bladder must be washed out with warm boracic lotion in the manner already described (*vide* Chapter VI.), the nurse bearing in mind that the greater part of the water injected will escape into the vagina. The urine will soon regain its normal state.

The cleansing of the skin, the vagina, and the washing-out of the bladder, should be done twice daily—morning and night.

A definite system is necessary in this preparatory treatment, and the proper way of carrying it out is to begin with the cleansing of the bladder, and end with that of the skin on each occasion.

A rapid improvement in the patient's condition will follow, and within a fortnight the operation may be undertaken with a fair prospect of success.

The regulation of the bowels, the preparation of the instruments to be used, the arrangement of the operating table, and the clothing of the patient immediately before operation, is in every way

similar to that described in the operation of perineal repair.

Before beginning, the operator may ask for a solution whereby to ascertain the exact position of the fistula.

This, of course, will only be required in cases where it is very small and not easily seen among the folds of vaginal mucous membrane. The liquid generally required for this purpose, and which should always be in readiness, consists of equal parts of sterilised milk and sterilised water. This is heated to a temperature of 100° F. and handed to the operator, who will by means of a catheter, joined to a Higginson's syringe with a fine-pointed nozzle, inject several ounces into the bladder. The white liquid now trickles into the vagina through the fistula, and determines at once the exact position of the opening, which is now stitched.

After the operation has been completed, and the patient put back to bed with a small iodoform gauze plug in the vagina, the nurse should immediately proceed to perform the first and most important part of the after-treatment, namely, the drainage of the bladder, which must be kept empty and at rest, so as to avoid all strain on the stitches used in the repair of the fistula.

A catheter is used for the purpose, preferably the soft rubber "winged" catheter.

The term "winged" has been given from the presence of two small rubber projections, one on each side of the instrument, at a distance of

about half an inch from the end which is to be inserted.

The object of these wings is to prevent the catheter from slipping out, which might easily happen if the patient were at all restless.

The wings are folded back against the sides of the catheter, and it is then introduced until they have disappeared from view in the urethra, whose walls maintain the folded position of the wings, until the bladder is reached, when, by their own elasticity they spread out and come in contact with the sides of the neck of the bladder, and thus the retention of the catheter is ensured.

Urine will begin to trickle through the catheter immediately on its introduction, and a convenient vessel must be placed to receive it.

A small slipper-pan may answer this purpose. In the same ward in which the bidet mentioned in Chapter II. is used, they use a vessel which was made by Messrs Gardner & Son, Edinburgh, also from a special design. In shape it is more or less like a slipper-pan. It has a broad, flat base, and the top is constructed so as to allow the patient's thighs to lie close to it, and is pierced by two holes. That at the toe or narrower end receives the catheter, and to that at the heel or broader end is joined a tubular handle, which also is a means of emptying the vessel. Part of the top can be removed like a lid, and thus the interior may be easily and thoroughly cleansed (*see* Fig. 11).

It has been found most useful in the after-

treatment of these cases. As it is impossible for it to be overturned, there is no risk of wetting the sheets. At the same time, from the arched shape of its roof, it can lie between the thighs without causing any inconvenience, especially if covered with a layer of cotton wool, upon which the limbs of the patient may rest.

Twenty-four hours after operation, or sooner, if blood is being passed through the catheter, the bladder should be washed out with warm boracic



FIG. II.

lotion; care being taken that not more than 3 ounces of lotion (*i.e.*, two compressions of the ball of an ordinary Higginson's syringe) is injected at a time. After the washing-out is completed, the catheter should be removed and a fresh one introduced.

The catheter just removed should be thoroughly washed, and its channel cleansed by a syringe, thereby removing all mucus and phosphatic deposit, a salt which soon accumulates in a catheter left in the bladder. After boiling, it is put away in a jar of boracic lotion, and is ready again for use next

day to replace the other, which must be treated after each extraction with similar care.

The packing of gauze in the vagina should also be slowly and gently withdrawn at the end of twenty-four hours.

A warm antiseptic douche of boracic lotion is now given slowly, after which the vagina should be carefully dried by means of thin layers of cotton wool wound round the index finger of the right hand. This manipulation should be done in the most cautious manner, and the vaginal canal, now quite dry, should be loosely packed with iodoform gauze, either in a dry state, or soaked with the eucalyptus, previously referred to.

The vagina should be douché, dried, and repacked, the bladder washed out, and the catheter changed once every day, and the vessel for receiving the urine thoroughly cleansed two or three times a day.

As a rule, drainage of the bladder is continued for a week or ten days, after which the catheter is permanently removed. Even at this stage, however, it is unwise to allow the bladder to become fully distended, and the patient must, therefore, pass urine every three or four hours for another week at least.

It sometimes happens that the patient is unable to do so at first, and in such a case the urine should be drawn off every four hours until she regains the power of passing it, which has been lost owing to the temporary disuse into which the bladder has fallen.

The stitches are usually removed at the end of a period of from ten to twelve days.

The result of the operation, which is often a most difficult and complicated one, depends very greatly on the way in which the after-treatment is carried out by the nurse, and no care or trouble should be spared to bring about a successful issue, and thus free a woman from the terrible discomforts and misery of a vesico-vaginal fistula.

CHAPTER X

VAGINAL HYSTERECTOMY

THE minor operations just described may be troublesome to operator and nurse alike, but, beyond the risk involved in the anæsthetic, are not dangerous to life.

The operation of vaginal hysterectomy, however, is of major importance, and unfortunately cannot always be successfully carried out. It is an operation by which the uterus is removed from the pelvis through the vagina, and is most frequently performed for cancer of the cervix.

It is necessary in this operation to open the peritoneal cavity through the vaginal roof, and this is where the risk of septic peritonitis is run, especially if performed for cancer of the cervix from which the discharges are of the most fœtid and septic character.

For these reasons, a nurse must take every care with the preparation of the patient, the instruments, and the operating room. The room should be prepared as carefully as if an abdominal section were to be performed. (*See preparation of the*

operating room — Abdominal Section.) All instruments to be used should be boiled for an hour, and the douche-can with its tubing should either be boiled or thoroughly carbolised. The glass nozzle should always be boiled.

Hot and cold sterilised water should be ready in plentiful supply for the douche and the lotions.

Five or six dozen sterilised small gauze swabs will be required.

For several days before operation, the preparation of the patient must be going on.

Each day she should have a warm bath, and twice daily an antiseptic douche of lysol (1-100). After each douche the vagina should be lightly packed with iodoform gauze, a tight plug being necessary only if hæmorrhage be severe, when pressure must be applied to control it.

On the night before the operation the genitals must be completely shaved, and an aperient given, followed by a large soap and water enema in the morning, the nurse making sure that the bowel is thoroughly emptied.

Four hours before the operation a douche of corrosive sublimate (1-2000) should be given, followed by another half an hour before the patient is taken to the operating room. Just before the second douche is administered, the patient should be instructed to empty her bladder. An ounce of brandy may be given one hour before being anæsthetised.

Before being removed into the operating room,

the patient should be clad in a warm flannel gown, with a flannel jacket buttoning at the back of the neck over this, which can be easily slipped off afterwards without moving her too much.

The usual long white woollen stockings, should also be worn. When fully under the anæsthetic, and the operation just about to begin, a nurse with surgically clean hands will, after the patient has been brought down to the end of the table in the Lithotomy posture, slip on a pair of long sterilised linen stockings over the woollen pair, completely covering them. (*See Perineal Repair.*)

The operating table should be prepared as for Abdominal Section with this exception, that in this case Kelly's rubber pad or apron is placed at the foot of the table, with the long flap hanging down over the end into a pail placed to receive the lotion as it returns from the vagina.

While the operation is going on, one nurse attends to the douche-can and keeps it filled with the lotion, at the required temperature; while another will hand swabs to the operator, by means of a long pair of forceps or by sponge holders.

In the operation of vaginal hysterectomy, the broad ligaments, which contain all the large blood-vessels, are divided, and though some surgeons use ligatures, others prefer the use of long clamps, which are left on the vessels to control all hæmorrhage.

When the patient has been put back to bed, she must be kept very quiet and not allowed to

move in any way, especially in those cases where long clamps have been used and are left protruding from the vagina. The nurse must soothe the patient and keep a constant watch upon the pulse.

Perhaps, in all such cases after operation, it is advisable to draw off the urine for the first two or three days by the use of the catheter. This is absolutely necessary in the cases where clamps have been used, and great care must be taken to avoid moving them in any way.

When the clamps are removed—as they generally are, a few days after operation—the nurse may be asked to give the patient an antiseptic vaginal douche.

In the manner already described, strict asepsis must be ensured, and the following additional precautions taken:—that the douche is allowed to flow very slowly, that the nozzle is inserted not further than three inches into the vagina, and that the douche-can is on no account raised higher than a foot above the level of the patient's hips. It must be remembered, that a douche given with any force after such an operation may do infinite mischief by carrying infection from the vagina into the peritoneal cavity, with which there is communication for the time being, thereby setting up septic peritonitis, from which very few recover.

CHAPTER XI

THE EXAMINATION OF THE FEMALE BLADDER

IT is only within recent years that the bladder has been found to be easy of examination, and the method usually adopted is that introduced by Howard Kelly. In this the urethra is dilated and the bladder illuminated by a light reflected from a head mirror along a special form of speculum passed into the dilated urethra. When the bladder is empty it is like a collapsed balloon, and cannot be examined satisfactorily. Neither can it be examined when distended with urine or lotion, because the fluid would escape whenever the speculum was passed into the bladder, the walls of which would immediately collapse.

By the aid of a special posture of the patient, however, the bladder may be distended with air and kept ballooned for any length of time on the introduction of the speculum into the urethra.

This examination being of such a nature that exposure is unavoidable, the patient is anæsthetised.

Accordingly, she must be prepared for the anæsthetic in the usual way, and just before being

brought into the operating room should be asked to empty her bladder.

The special instruments used should be well cleaned and then boiled for half an hour at least. They should then be placed in a shallow instrument tray containing hot antiseptic lotion in sufficient quantity to completely cover them. In addition to these the nurse should have ready the following :—

A well-polished head mirror (Laryngoscopic).

A small reflecting lamp capable of giving a bright light.

A Kelly's rubber apron.

A sterilised glass catheter.

A sterilised glass syringe in good working order and fitted with a piece of sterilised rubber tubing from 6 to 8 inches long, and about the thickness of a No. 9 rubber catheter. Until required, this syringe and also the glass catheter may be kept in the antiseptic lotion in the instrument tray.

A douche-can well carbolised and fitted with rubber tubing, to which is attached a Fritsch's double catheter previously sterilised by boiling.

Two quarts of lotion—boracic (1-40) or carbolic (1-100) according to the surgeon's directions.

A bath thermometer previously carbolised.

A pail to receive lotion.

Two large hard pillows covered with carbolised jaconet.

Sterilised linen stockings—to be put on above

the woollen pair when the patient is under the anæsthetic and in the Lithotomy posture. (*See Perineal Repair.*)

A basin of warm corrosive sublimate lotion (1-1000), in which lie pieces of sublimated wool to be used as swabs for cleansing the external genitals before any instruments may be passed into the urethra.

Lysol and turpentine soap (*see* Abdominal Section) or carbolic soap, with which to cleanse the parts before swabbing with boracic.

The patient's legs are best held in position by two nurses. (*See Perineal Repair.*)

If the nurses support the legs in the correct way each will have a free hand, one for holding the reflecting lamp and one for passing the lotion and swabs, etc., to the operator, when required.

When fully under the anæsthetic, the patient's garments are loosened and rolled up so as to be well out of the way. She is then brought to the end of the table and her hips raised upon the jaconet-covered pillows placed one on the top of the other.

Before raising the pelvis thus, however, the operator cleanses the genitals with soap and water and then with swabs soaked in an antiseptic lotion, after which he will pass the glass catheter in order to remove any small quantity of urine that may have accumulated in the bladder while the patient was being anæsthetised.

This done and the pelvis elevated on the pillows, the sterilised stockings are put on.

The room is then darkened by pulling down the window-blinds and closing the doors.

The operator now fixes the mirror to his forehead, the nurses stand one on either side of the patient holding the limbs well up, and the reflecting lamp is held just above the patient's pubes. The nurse who holds the lamp must be careful to keep it at a safe distance from the skin, as it is very easy to burn an anæsthetised patient in this way, and indicates carelessness on the part of the nurse. If the light be a strong one and giving off much heat, it is a safe practice to place a folded towel over the skin immediately beneath the lamp.

Should the examination be a prolonged one the surgeon will, from time to time, ask for the glass syringe and rubber tubing with which to remove any urine that may have accumulated in the bladder.

During the examination, with the exception of holding the lamp and passing to the operator the basin of lotion and swabs, all that the nurses have to do is to keep the patient's legs well out of the way.

When the examination is over however, their duties begin.

The first thing to be done is to thoroughly wash out the bladder, which, from exposure to the atmosphere, may have become slightly infected. Accordingly the pillows are removed and the Kelly's apron properly placed beneath the patient's

hips. A pail is placed upon the floor and the flap of the apron draped into it. The nurse must now cool the lotion, boracic (1-40) or carbolic (1-100), as the case may be, down to a temperature not exceeding 100° Fahr. After making certain that her hands are in an aseptic state, she will give the urethra and vestibule a final swabbing with corrosive lotion (1-2000), and introduce the double catheter, through which a little of the lotion must be allowed to run, to take off the chill caused by passing through the tubing and to prevent the injection of air. Two quarts of lotion are sufficient for the douche.

The patient's buttocks are now carefully dried, the Kelly's apron removed, and with her clothing properly arranged she is put back to bed.

After an ordinary examination of the bladder by Kelly's method, the dilated urethra contracts to its normal size within a very short time.

It is a wise precaution to place a large pad of sublimated wool under the hips. This, of course, is done when the patient is in bed; and its object is to soak up any urine that may trickle from the bladder through the dilated urethra, while the patient is recovering from the effects of the anæsthetic.

Should the operator during the examination introduce his finger into the bladder to explore its cavity, incontinence for several hours and sometimes for a day or two may occasionally result. In such a case it is advisable to keep the

patient on a rubber bed-pan, paying attention to the state of the skin.

Should the incontinence last longer than expected, the surgeon may ask the nurse to apply the electric battery—one electrode being placed over the spine just above the “small of the back” while the other is held against the abdomen in the middle line just above the pubes.

Only a very mild electrical current is necessary, and a nurse must not imagine that she will hasten her patient’s recovery by using a strong one.

As already mentioned, the large majority of bladder examinations are conducted under an anæsthetic.

In very exceptional cases the operator conducts the examination without an anæsthetic and places the patient in the genupectoral position.

In this posture the patient places herself on her knees at the foot of the table, and keeping her thighs vertical to it, bends forward until her chest rests on the pillow placed for the purpose. As one may well imagine, this posture necessitates an exposure which is very distasteful indeed, and is only employed when absolutely unavoidable,

CHAPTER XII

THE EXAMINATION OF THE RECTUM

BEFORE leaving the "speculum" method of examination introduced by Kelly, mention may be made of a few points important to the nurse in the examination of the rectum, which is now quite frequently conducted in a gynæcological ward.

In cases of early malignant stricture, etc., the examination "by sight" is of great importance.

By the use of a Kelly's rectal speculum, the mucous membrane of the bowel can be carefully inspected for a distance of several inches above the anus, and certainly at a higher level than the finger could reach.

For the same reasons as in exploration of the bladder, this examination is usually conducted under an anæsthetic. In addition, however, the sphincter muscle of the anus is more easily dilated, and therefore the speculum introduced with greater ease, if the patient be anæsthetised.

The rectal speculum should be boiled, and kept highly polished.

A head mirror such as is used for a bladder examination is again required.

A small reflecting lamp may also be used in a darkened room to give the necessary illumination, but, in many cases, where good light may be had during the day from windows, by suitably placing the patient on the table the lamp may be dispensed with, and the speculum illuminated by the mirror on the forehead of the operator, who will, of course, face the window which admits the light.

The preparation for rectal examination differs in some respects from the usual preparation for an anæsthetic.

As the bowel itself is the part to be examined, its special preparation requires attention.

It is the custom in ordinary cases to give castor oil to the patient on the night before the anæsthetic is to be given and to follow this by an enema in the morning. If this be done it will frequently be found that some of the enema has not been returned, and also that fæcal matter brought low down into the rectum by the enema, has not been expelled. This unclean condition of the bowel materially interferes with the proper examination of its walls.

The nurse's aim should be to have the patient's rectum as clean as possible and quite empty at the time of examination. This may be effected in the following way: Castor oil is given about 3 p.m. on the day preceding the examination. As a result the bowels will in all probability move

freely in the early evening of the same day or before midnight. Two hours after they have moved a large soap and water enema should be given. No second enema need be given and the bowels should not be further disturbed.

As regards the giving of food to the patient after the castor oil has been administered, the nurse must remember that it is advisable to give as little as possible so that there may be a minimum residue. The patient should have only a very light tea in the afternoon, no supper in the evening, and the usual small cup of tea with toast in the early morning.

Two pillows or cushions should be at hand to retain the patient in the required position, which one might describe as a modified Sims' posture.

When completely anaesthetised the patient should be turned over on the table so as to lie on her face.

Her pelvis should be raised and the pillows or cushions placed beneath the lower part of the abdomen and pubes. In this way the buttocks are much elevated above any other part of the body, so that when the speculum is passed into the bowel, air will immediately rush in and balloon it, thus rendering visible to the operator every fold of the mucous membrane.

The buttocks only should be uncovered during this examination, all other parts being well covered with blankets.

A pot of carbolic vaseline or pure vaseline should be at hand, with which to lubricate the

outside of the speculum, that it may pass easily into and along the bowel.

In cases of advanced malignant disease of the bowel, where there is much discharge in the form of an obstinate diarrhoea, it is well-nigh impossible to thoroughly cleanse the rectum. This has often to be done by the operator himself after he has introduced the speculum, and in the removal of mucus, etc., long narrow sponge-holders carrying small gauze swabs are required. These are passed along the speculum and cleanse the ballooned walls of the bowel.

CHAPTER XIII

THE INTRA-UTERINE DOUCHE

THE intra-uterine douche is used to stop hæmorrhage and to control sepsis. It is always of an antiseptic nature and is given with the strictest antiseptic precautions. When one hears of cases of death following the birth of a child due to puerperal, or child-bed, fever, as it is commonly called, one can realise how easy it is to infect the uterus, seeing that after complete delivery there is a raw surface left exposed.

The temperature of the lotion used for the intra-uterine douche is different in each of two sets of cases for which it is used. If to control sepsis, it need not be more than 110° Fahr., while for hæmorrhage it should always be 120° Fahr.

In checking hæmorrhage the hot lotion injected contracts the blood-vessels of the uterus.

The antiseptic lotion in general use for the intra-uterine douche is corrosive sublimate (1-4000). As this substance is poisonous and comes into contact with the raw inner surface of the uterus, it can be

easily understood how absorption may take place, and lead to symptoms of poisoning, therefore the corrosive douche is always followed by one of hot sterilised water to wash out any excess of the antiseptic within the uterus, and the nurse must have it in readiness. The amount of lotion usually required is a quart, and should be followed by the same quantity of sterilised water.

Before the surgeon gives the intra-uterine douche it is absolutely essential that a vaginal antiseptic douche be administered, especially in septic cases, where by omitting it, infection may be actually



FIG. 12.

carried into the uterus from the vagina on the introduction of the Fritsch's double-channelled catheter (*see* Fig. 12).

Again, in such cases, care must be taken to cleanse the vulva before giving even the vaginal douche. This is done by swabs soaked in corrosive sublimate (1-2000).

Notice, therefore, that the method adopted is one in which the parts are cleansed from below upwards, beginning with the external genitals and ending with the uterus.

The patient is placed on the bidet at the edge of the bed; the parts are cleansed "by sight," the vaginal

douche is given also "by sight," and then the glass nozzle is disconnected from the rubber tubing which is now attached to the end of the double catheter already mentioned.

The douche-can is filled with the antiseptic lotion of the required temperature, and before handing the catheter to the surgeon the nurse must allow some of the lotion to flow through the catheter and so expel all air. When it has been introduced into the uterus the douche-can will be raised to allow the lotion to flow freely. A special precaution is that the douche-can should not upon any account be raised too high.

The process takes longer than that of vaginal douching, because, although running well, the douche-can is kept low and the volume of the fluid thus reduced. Before all the corrosive lotion has flowed from the douche-can, the rubber tubing should be kinked and the hot sterilised water added. In this way air is not injected into the cavity of the uterus, as would be the case if the hot water were added after the can had become quite empty.

When the prescribed quantities of corrosive lotion and sterilised water have been used and the Fritsch's catheter withdrawn, the bidet will be removed, the patient carefully dried, and a large pad of sublimated wool placed over the vulva for the purpose of soaking any fluid which may be returned from the vagina.

The Fritsch's catheter before being used should always be boiled for half an hour at least, and before

removing it from the steriliser or handling it in any way, the nurse's hands must be rendered perfectly clean and aseptic. A Fritsch's catheter used for a septic case should be kept for that only while douching is to be continued.

CHAPTER XIV

GONORRHOEA

THE gynæcological nurse knows only too well how terribly common is gonorrhœa—a disease, the mention of which cannot well be omitted in these notes and which, if not detected and strenuously combated in its earlier stages, leads to all the most serious affections of the pelvic organs from ovaritis to pyosalpinx.

Gonorrhœa always begins as a purely local condition; in fact as a vulvitis and vaginitis. It is while the disease is at this stage that the services of the nurse are valuable, as it is then that vigorous treatment should be adopted to prevent the infection from passing upwards into the uterus and thence to the ovaries and Fallopian tubes, from which it is seldom, if ever, completely eradicated.

Should such a patient come under the care of a nurse, who has charge of a ward of many beds, it is of the greatest importance to realise that she is a source of danger to other patients as well as to the nurse herself. This is because of the infective nature of the profuse greenish-yellow vaginal discharge

which is characteristic of the disease. Therefore, for the safety of everyone, all articles used for the patient should be set aside for her use only.

Much valuable time is lost by these poor women themselves, who often use simple douches of hot water, or perhaps a solution of alum, in the vain hope of arresting the progress of the disease.

A strong antiseptic is necessary to kill the organisms, and its constant action is quite as important as the strength at which it is used. Corrosive sublimate is generally prescribed, and is used both as a vaginal douche and as the antiseptic for saturating the plug employed.

The douche need not be stronger than 1-4000 corrosive lotion, and should be given night and morning. One or two quarts will be sufficient at a time, and the glass nozzle must be carried well up to the vaginal roof.

After the evening douche has been given, the nurse will proceed to plug the vagina, and this must be done almost as carefully as if for the arrest of hæmorrhage.

In this disease the folds or rugæ of the mucous membrane of the vagina become, as a result of the acute inflammation, very large and swollen; and, consequently, the furrows between the ridges become much deeper. The douche may cleanse the ridges, but it does not reach the deep crevices in which much discharge, teeming with the infective organism, still remains.

To apply the antiseptic plug, therefore, to every

part of the surface, it is necessary to stretch the vaginal walls, so that the ridges may be flattened, and the furrows, consequently, brought into contact with the plug. A very large plug well packed into every part of the vagina will accomplish this. It is made of iodoform gauze soaked in corrosive lotion (1-2000), the excess being wrung out. In order to introduce it satisfactorily, not only will the Sims' posture be necessary, but, in addition, it is always advisable to use the vaginal speculum, as the walls have been rendered so abnormally tender by the acute inflammation that any but the gentlest manipulation is almost unbearable.

When the plug has been introduced and tightly packed in, the speculum is withdrawn by the left hand. In its removal one is very apt to dislodge the plug from the vaginal roof, and, therefore, while the instrument is being slowly withdrawn, the nurse must press it firmly upwards with the fore-finger of the right hand.

Plugging once in twenty-four hours is all that is necessary. This is generally done after the evening douche, the plug being removed before the morning douche is given.

In addition to the vaginal condition, it will often be found that the urethra and bladder are in a state of acute inflammation. These complications will be treated according to the directions of the surgeon.

From being constantly covered with discharge of so irritating a nature, the labia are frequently swollen, red, and tender; and it gives the patient much relief

to have these parts well cleansed, powdered, and above all separated by means of a folded piece of dry iodoform gauze retained in position by a T-bandage.

Sometimes, even though the greatest care be taken in inserting the plugs, a slight excoriation will appear near the vaginal orifice. This greatly increases the pain caused by the insertion, and, in such a case, after the douche has been given, a small piece of cotton wool, soaked in a 5 per cent. solution of cocaine, should be applied and left in contact with the raw surface for two or three minutes, after which the plug may be introduced with comparative ease and comfort.

In using mercurial douches and plugs, the nurse must always remember that the mucous membrane of the vagina is very absorbent, and should the patient, after some days, complain of sore gums, foul breath, etc., it indicates mercurial poisoning, and therefore all plugging, and douching with corrosive sublimate should at once be stopped until every poisonous symptom has disappeared, after which it may again be employed. In the interval, simple douches of boracic lotion should be given, and the vagina packed with dry iodoform gauze.

All plugs, wool, etc., used in these cases should be at once destroyed, also the glass vaginal nozzle when the treatment is ended. Warning should also be given to the patient that she must on no account touch the genitals, as infection is so easily conveyed to the eyes, setting up an inflammation so acute that it may result in the destruction of the whole eye.

The speculum and all instruments used should be boiled after use. All basins, etc., must, likewise, be thoroughly cleansed, and the nurse should take great care of her own fingers so as to avoid transmitting the disease to other patients.

Gonorrhœa is unfortunately not confined to young unmarried women, but is also met with in the married. With regard to the latter class, great care should be taken by the nurse to say nothing to the patient, or to her friends, as to the nature and probable origin of the disease. It does not mend matters, and can only cause additional misery to one already in a most sad and distressing condition.

CHAPTER XV

ABDOMINAL SECTION

THE operation of Abdominal Section is one which is performed for many gynaecological conditions, and is not looked upon with the same dread now as it was some years ago. Now, as then, there is always the risk of sepsis, and this was in the large majority of cases, the cause of death in past years.

The use of antiseptics and the methods available for thorough sterilisation have rendered this formidable operation a comparatively safe one.

The nurse engaged to assist at this operation must always realise that her duty is an extremely responsible one, and it would be well if all were gifted with, what is well termed, the "antiseptic conscience."

The following comprehend most of the nurse's duties entailed in the operation of Abdominal Section:—

Preparation of the operating room.

Preparation of the patient for operation.

Preparation of patient on the operating table.

Precautions to be taken by the nurse herself.

Duties of the nurse during operation.

Preparation of bed of patient.

Immediate duties of nurse following operation.

After-treatment of the patient with reference to duties entrusted to the nurse.

1.—Preparation of the Operating Room.

There is, now, but little doubt that infection is chiefly carried to a wound and into a cavity by direct communication, and, from a nurse's point of view, this means her hands, and the swabs, sponges, or instruments, that she hands to the operator, together with all basins, trays, and caskets that are then in use.

For the prevention of atmospheric infection by dust, etc., the surgeon also relies upon the nurse, so the theatre should be made as clean and as aseptic as possible.

The old method of fumigation with sulphur was here, as has been proved from time to time in fever cases, very inadequate, and was always apt to give a false sense of security to those who carried it out. Fumigation is now considered quite unnecessary in our operating theatres, and, therefore, the details of this unreliable process need not be given here. Theatres are now constructed on very simple and scientific principles with rounded corners at ceiling and floor, thereby to prevent the accumulation of dust, and thus facilitate thorough cleaning.

Cleaning should consist of a thorough scrubbing

with soap and water of floor, walls, and of all theatre furnishings—stools, tables, metal chairs, etc. Lotion bottles and all glass tops of tables should be thoroughly washed with a solution of lysol; in fact, every article in the theatre should be attended to, no matter how insignificant it may seem.

It is a good plan to prepare everything that will be required on the day before operation. Confusion on the morning of the day is thus avoided.

If the theatre should require to be dusted before the surgeon's arrival, it should be done early on that day, and with a *damp* cloth.

The arrangement of the theatre furnishings is left to the nurse, and she must see that everything is in its right place before the operation begins.

The senior nurse may be required to hand instruments as well as to take care of the swabs, and she must not upon any account do anything else.

A second nurse is nearly always required for the operation of ovariectomy, so she must be ready when the tumour is punctured, to catch the escaping fluid in basins. In this way, neither operator nor assistant need soil his hands more than is necessary.

Before describing the arrangement of tables, lotions, etc., mention should be made that all windows ought to be shut, so that no current of air can carry infection into the abdomen, or chill the patient. The temperature of the room should be strictly attended to, and on no account ever be allowed to fall below

65° Fahr.—the best temperature being 70° Fahr., which is not by any means too warm for an anæsthetised patient, nor too great for the operator.

The wash-hand basins, which are supplied with water by a pedal arrangement, should be scrupulously clean. Close at hand should be a jar of green turpentine soap and small bottles of turpentine, sulphuric ether, methylated spirit, and pure lysol. A large bottle of saturated solution of permanganate of potash and of oxalic acid should also be in the theatre.

Nail brushes should always be boiled before operation, and kept in a glass jar of lysol lotion (1-100). At least six brushes should be available. There is nothing that annoys a surgeon more than to have to attempt to scrub his hands and arms with an old, worn nail brush. The nurse must, therefore, always see that the brushes are in good condition, with strong bristles well fixed and close together. An ordinary strong brush with an unvarnished wooden back is the best, as it can be sterilised.

The operating table is placed in a position where good light can be obtained. A blanket is spread over it, and another is laid folded at the foot—this being used to cover the patient's limbs during the operation. It should also be supplied with a flat pillow, and close to it, a soft towel, which the anæsthetist may use in the event of the patient's vomiting. A Kelly's apron is laid on the centre of the table, and placed in such a way that the rounded side will be next the operator, while the

long flap will hang down into a large dressing tray or pail upon the opposite side. The apron used thus is of very great service indeed, as if the rim has been well inflated and the patient properly placed, with her buttocks in the centre of the pad, and her clothes drawn well up, all fluid will run down into the pad and thence along the flap into the pail or dressing tray. The table seen in the diagram is well suited for gynaecological work, as it is so constructed that after dropping the foot it can be easily and quickly tilted to put the patient in what is known as the Trendelenburg position, which is so advantageous when the disease is situated deep in the pelvis.

As time is of great importance during any operation, everything should be prepared for the tilting of the table beforehand, so that there will be no delay when the operator finds the change of the patient's position necessary. Accordingly, a draw-sheet folded up to a breadth of about eight inches is laid at the foot of the table and secured in the manner described further on (*see* preparation of patient on the operating table). Four strong screws, two upon each side, regulate the swinging movement of this table.

A glance at the diagram (*see* Fig. 13) will also show a pan which lies beneath the patient, but which is separated from her by the perforated top of the table and by the under blanket. Before operation it should be filled with water about 180° Fahr. This is of great use in maintaining the heat

of the body, which is so necessary in prolonged surgical operations.

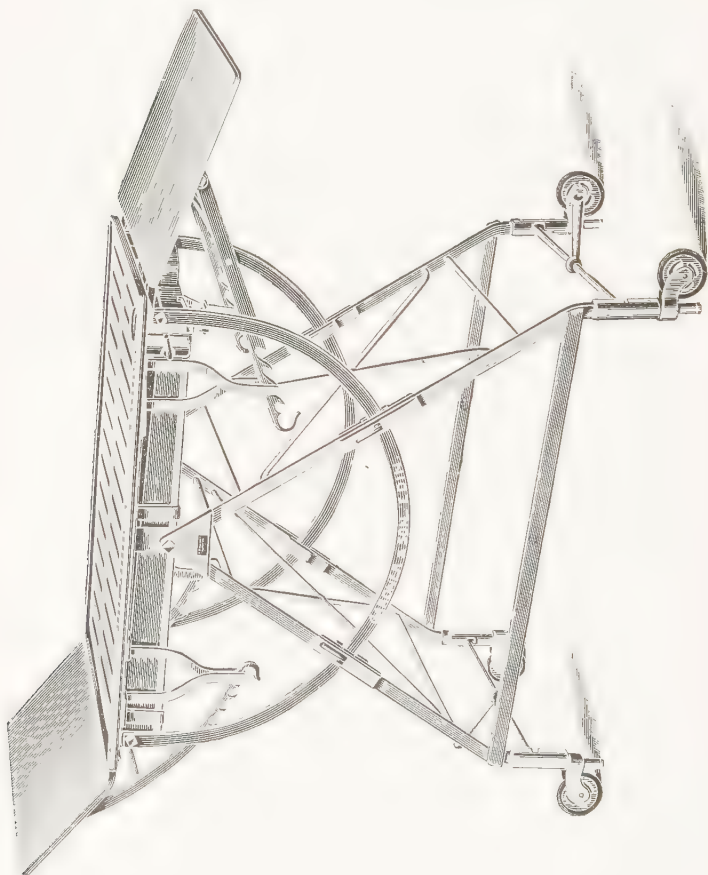


FIG. 13.

At least two tables (*see* Fig. 14), each preferably with two or three shelves, should be in use, one for

the use of the instrument clerk, and one for the senior nurse.

The instruments, together with the glass nozzle of the irrigator, a new glass catheter, several glass drainage tubes of various lengths, and a transfusion

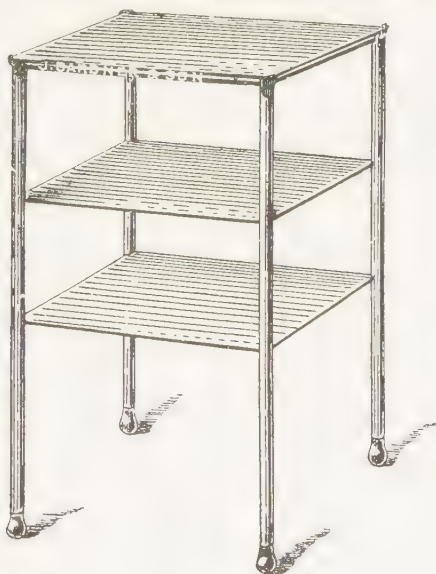


FIG. 14.

needle, are put into the steriliser, covered with water, to which a small piece of soda has been added, and boiled for an hour. This should be done two hours before the operation begins. They are then left to cool in the steriliser, from which they are removed about half an hour before the operation begins, and placed in two or three instrument trays, containing

warm antiseptic lotion or sterilised water in sufficient quantity to cover them. Corrosive sublimate should, of course, never be used. Knives should be placed in an instrument tray and covered with carbolic lotion (1-20) for two or three hours before use. Boiling destroys the "temper" of the blades. The ligatures should be boiled for an hour in a small steriliser without any soda. The instrument trays lie on the top shelf of a glass table, the lower shelf holding basins of fresh lotion, and the corrosive "dip" (1-1000) for the hands of the instrument clerk.

Gauze swabs are now almost universally used, and these are sterilised in caskets in the steam steriliser at the same time that the instruments are being prepared. The caskets, on being removed after half an hour's sterilisation, are at once closed and all air excluded. They are then set upon the other glass table. The swabs are made in the way described under "Preparation of sponges and swabs." They are tied in packets of one dozen each, and six dozen (consisting of one dozen very large, three medium, and two small) may be required for an ordinary ovariectomy. In complicated cases it is always safe to have eight dozen prepared.

At least six overalls should be sterilised in another casket for the use of the operator, assistant, instrument clerk, anaesthetist, nurse, etc.

In yet another casket are sterilised towels of medium size. Ten or twelve of these should be prepared for each abdominal section, as it may be

necessary to change them during the operation. These towels should be set aside for abdominal operations, and never used for any other purpose. No casket should be opened till the operation is just about to commence, and then by an assistant, and not by the senior nurse.

On the lower shelf of the table, over which the senior nurse has charge, a large basin should be placed to receive soiled swabs. Upon a third table, or in an ordinary dressing-box, should be two pieces of jaconet, one of which must be long enough to reach from the patient's pubes to her feet. In addition, plenty of cotton wool, adhesive plaster, dressings—either iodoform or plain sterilised gauze—a bottle of collodion with brush attached, a binder 12 to 14 inches in width, and long enough to go one and a half times round the patient's abdomen, must all be ready.

There should be an ample supply of boracic, carbolic, corrosive, and lysol lotions. At least 4 gallons of boiling, and 2 of cold, sterilised water, will be required for each operation. The irrigator, with its thermometer, both previously carbolised, must be in readiness. The water for irrigating is never used at a temperature higher than 100° Fahr., and, therefore, it will be necessary to determine the exact heat.

If it be anticipated by the surgeon that there will be much loss of blood during the operation, he will order a saline solution to be in readiness for transfusion. This solution is made by adding to a pint of sterilised water a teaspoonful of fine common

salt. It is used at a temperature of 100° Fahr., which should be maintained throughout the transfusion. If it has been prepared beforehand and has become cold, it must be reheated by allowing the glass flask containing it to lie in a large basin of hot water.

As already mentioned in a previous chapter, sponges have fallen very much out of use, but, if they are asked for instead of swabs, four large, four small, and two flat ones should be got ready. In addition, also, a very large flat sponge should be at hand, in case the operator should ask for one to cover the intestines during the operation. It is also well to have an extra set of sponges or swabs ready for use, as, should the tumour be a suppurating or a malignant one, a change of sponges for cleansing the peritoneum is absolutely necessary.

If sponges be used, the table used for the swab caskets, will have placed upon it three large basins for holding and cleaning the sponges.

The nurse will prepare the chloroform mask by covering it with a new piece of white lint. The edges of the lint should be trimmed to within half an inch of the edge of the mask.

A small jar of pure vaseline should also be at hand, should the anaesthetist wish to smear the face of the patient to protect it from the irritation sometimes caused if chloroform is used. For his use also a gag, a pair of tongue forceps, a minim glass, a small bottle of strychnine, a bottle of pure ether, and a hypodermic syringe in thorough working order, fitted with an

antiseptically clean needle, should be placed near the head of the table.

A medicine glass, a bottle of brandy, and a three or four ounce ball syringe (*see* Fig. 15) should be in the theatre, lest the patient should require a brandy enema during or immediately after the operation.

Every nurse knows well that the majority of gynaecological operations are begun and finished without

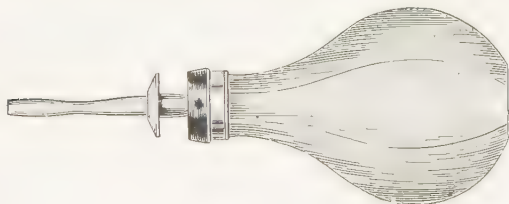


FIG. 15.

a hitch, *i.e.*, without the need of brandy enemata, hypodermic injections, etc., but one can never tell beforehand what will happen to a patient under an anæsthetic, nor how extensive the operation may be, and, therefore, forewarned by previous experience, the nurse will, in having everything ready for emergencies, be also forearmed.

2.—Preparation of the Patient for Operation.

The thorough and careful preparation of the patient for this operation is a duty by which a nurse may not only give satisfaction to the operator, and hasten the patient's convalescence, but also reflect credit on herself.

In order to harbour up the strength of a patient and to accustom her to rest in the constrained position in which she will soon be required to lie, she must always, if possible, be made to rest absolutely for a day or two before the operation. During this time the pulse and temperature are taken night and morning.

The diet should be light and easy of digestion—well boiled milk gruel being, in most cases, very acceptable once a day, and preferably given in the evening.

The bowels should also be moved freely once a day and the urine measured.

A warm bath is given daily, but cannot be continued after the preparation of the skin of the abdomen has been begun.

Care must be taken in all cases of extra-uterine gestation that the patient should not get out of bed for her bath, but should be thoroughly sponged by the nurse. This precaution is taken to avoid any risk of hæmorrhage, which might result from even slight exertion.

Two nights (*i.e.*, thirty-six hours) before the morning of operation, the careful preparation of the skin of the abdomen is begun. The nurse will take the following articles to the bedside of the patient:—

Four pieces of jaconet, of which one must be new and of sufficient size to cover the whole abdomen.

Two domett bandages, three or four inches wide.
Several strong safety pins.

A rubber brush or an ordinary nail brush.

A jar of green turpentine soap.

A basin of warm lysol lotion in which lie pieces of sublimated cotton wool.

A sharp razor or, if preferred, a safety razor.

One clean towel, not necessarily sterilised.

Several pieces of dry, sublimated cotton wool.

A bottle of pure glycerine.

A bottle of boracic powder.

A bottle of turpentine.

A bottle of sulphuric ether.

All of these are needed in the cleansing process. Close at hand, also, should be the basin in which the first soak to be applied is kept moist. These various substances are used in a definite order and in a definite way ; but before describing this a few hints about some of the appliances and materials may appropriately be given.

The green turpentine soap is desirable as it is antiseptic, and at the same times easily makes a lather.

The rubber brush has often been condemned owing to the fact that it is frequently in a dirty, septic state. This is of course due to the want of proper care in cleansing it after use. It is easily cleaned, and, after being used, it should be kept completely covered with corrosive lotion (1-1000) in a small glass jar. It has this advantage that, being soft and pliable, it can be easily applied to folds of skin in the various regions, and with a fair amount of friction, without causing pain or excoriating the skin in any way. The strong

bristles of the nail brush cause much discomfort if used in vigorous scrubbing.

The razor should be very sharp—it being a well-known fact that the skin is more apt to be cut in the jerky motion of a blunt razor than with a sharp one, which glides smoothly over the surface. In a case where abdominal hysterectomy is to be performed, and where the vagina may be used by the operator as a channel whereby to drain discharge from the pelvis, the shaving of the external genitals must be complete—all hair being removed from the labia and the perineum. This is of great importance to the surgeon who, in the operation of hysterectomy, clips through the vaginal roof by scissors to free the uterus and allow of its removal by the abdominal wound. In such cases also, it is necessary that the vagina should be rendered aseptic by a series of antiseptic douches and plugs of iodoform gauze, just as in the preparation of a case of vaginal hysterectomy.

A nurse will find some difficulty in so shaving the parts, if the patient be allowed to lie flat in bed. A good plan is to raise the buttocks by means of a large firm pillow covered all over with jaconet, and placed under the small of the back, so that no part of it will project below the perineum to hinder the nurse's manipulations with the razor. The pieces of jaconet used must be previously thoroughly carbolicised.

The clean towel is for the use of the nurse herself, so that she may occasionally dry her hands and regain a secure grip of the razor. The pieces of

wool soaked in the lysol lotion are used to wipe off excess of soap from the abdomen, after it has been thoroughly scrubbed, and also to remove loose hairs from the razor and the skin.

In cleaning the razor it is a mistake to carelessly rub the edge of the instrument with the swab. The blade should be laid flat on the moist wool and gently pulled over it. In this way the edge is not destroyed.

The pieces of dry wool are used to apply the turpentine and ether to the skin. These fluids are simply poured over the wool and used immediately, as, in the case of ether, evaporation quickly takes place.

The boric acid powder and the glycerine are mixed to form a boro-glyceride, which is antiseptic, non-irritating, and can penetrate the skin. It is rubbed over the pubes only, where, after shaving and scrubbing, infection of the hair follicles might take place. By its use, irritation of the skin and consequent pustules are prevented.

The first soak, put on two nights before the operation, is that known as the "soda soak," the use of which lies in the power the soda possesses of dissolving and loosening the superficial layers of the epidermis, thereby getting rid of skin infection when the next scrubbing takes place twenty-four hours afterwards, and before the antiseptic soak is applied.

The soda soak consists of a piece of sublimated wool, large enough to cover the whole abdomen

thoroughly saturated with a solution of washing soda of the strength of a tea-spoonful of soda to a pint of water. It should not be wrung out till just before being placed on the abdomen.

The jaconet, which covers the soak, is retained in position by the use of two domett bandages, most carefully applied and fastened well with safety pins, as even when under the strictest observation a patient may often, in her state of restless anxiety, toss about, and so loosen and displace the soak, thus exposing a part of the skin, and necessitating a repetition of the whole process.

Before beginning the preparation the nurse should cleanse her hands thoroughly, but, as she has to handle various articles which are not sterilised in the first part of the process, her hands need not, in fact, cannot, be sterile until all washing, etc., is over. When she comes to deal with the materials that are to be in close proximity to the prepared skin, she must then take care that her hands are rendered surgically clean.

Having everything in readiness, she begins the process by first turning down all the bed clothes, with the exception of one blanket, to the foot of the bed, that they may be completely out of the way, leaving the blanket as the sole covering. This is now turned down below the pubes, and the night-dress is rolled up all round.

During the exposure, which will be a prolonged one, all windows should be closed and the room kept comfortably warm.

Three pieces of jaconet are taken. The first is slipped beneath the patient's back, and projects on either side for a considerable distance. The second covers the turned-down blanket, and has its edges well tucked in, so as to prevent its becoming wet. The third is placed over the patient's chest, its edges also being folded in under the rolled-up nightdress. Some green soap is now put upon the centre of the abdomen, and is rubbed in all directions from the centre, so as to get a thin film of soap over the whole surface—the sides being cleansed with the same care.

The most difficult spot of the abdomen to cleanse is the umbilicus. The folds of skin must be carefully held apart and well scrubbed. The rubber brush dipped in lysol lotion should then be used in a prolonged and careful scrubbing. Should the patient be very stout, the umbilicus may not be visible—it may be retracted an inch or more from the surface. In such a case soap should be applied, and cleansing done by a small piece of wool held on a pair of dressing forceps. The pubic hair is, after lathering with soap and lotion, well shaved—the skin so exposed, requiring as careful scrubbing and cleansing as the umbilicus.

For an ordinary Abdominal Section the pubic hair need only be removed as far as the cleft between the labia; but, for abdominal hysterectomy, the labia and also the perineum must be shaved and thoroughly cleansed.

It is advisable also, to shave off any hairs in the middle line between the umbilicus and pubes.

All excess of soap and loose hair is removed by swabbing with clean lysol swabs.

The nurse should sterilise her hands for the rest of the process.

Turpentine is now rubbed over the abdomen, and this is followed by an application of ether over the whole surface. Great care must again be directed to the pubes and umbilicus, and into the latter it is desirable, if it be retracted, to pour some ether. A little glycerine is now poured over the area from which the pubic hair has been removed, and distributed equally over that surface. Boric acid powder is sprinkled over the glycerine, and rubbed well into the hair follicles. Enough boric acid should be used to form a creamy paste, thick enough to remain on the skin without running down the folds of the groin, etc.

This completes the preparation of the skin for the first night. The soda soak, which must be large enough to overlap the sides of the abdomen, is now well wrung out of the solution, and applied closely and smoothly to the skin. If the umbilicus be deep, it is advisable, before applying the soak, to fill up the cavity with a small piece of the soaked wool.

At this point the three pieces of jaconet are removed; that below the patient with care, as in all probability it will be very wet. The essential principle of the wet dressing, as the word "soak" implies, is moisture; and, to keep the wool constantly moist, all possibility of evaporation must be prevented. This is accomplished by the piece of

new carbolised jaconet, which is put on so as to completely cover and overlap the soak by two or three inches, the glazed surface being next the dressing. If even a small piece of the moist wool is left uncovered, evaporation at once sets in and the desired effect will be much interfered with.

The first bandage is wound several times tightly round the lower edge of the jaconet, then crossed in front of the abdomen, ending at the upper border of the dressing. The second is applied like the first, beginning at the upper edge, crossing the abdomen, and ending below. Additional security is given by passing the bandage once or twice round each thigh, thus forming a kind of figure of eight. Everything is made secure by the use of safety pins. Some surgeons prefer to shave the pubes just before the incision is made, the reason for so doing being to spare the patient's feelings.

The great proof of the efficacy of the preparation of the skin is the complete absence of stitch abscesses or of inflammatory redness near the sutures—assuming, of course, that needles and sutures are perfectly sterile. Repeated cases of stitch abscess or early mischief in the wound, necessitating the premature removal of one or more stitches, show that there is something very far wrong, and in the large majority of cases, it is from the skin itself that the sepsis arises, indicating, as it undoubtedly does, careless preparation on the part of the nurse. The soda soak left on for twenty-four hours is, on the night before opera-

tion, taken off and replaced by the antiseptic soak. Before this is applied the application of soap, turpentine, ether, glycerine, and boric acid, etc., is repeated just as before.

The antiseptic and final soak is usually of corrosive sublimate lotion (1-2000), or carbolic lotion (1-60). Before applying this the hands of the nurse must be perfectly clean and sterile. It is fixed in the same way as before; a second piece of new jaconet is used and is left on until the patient is under the influence of the anæsthetic, when the soak is removed.

The value of the necessity for attending to all these many details cannot be too strongly impressed upon those new to the nursing of gynæcological cases. The stitch abscess, when it arises, causes pain and delays the healthy action of the tissues in the process of healing. It thus, if at all extensive, greatly prolongs the convalescence of the patient, and submits her to the distress of being constantly "dressed." Since adopting the above method of preparing the abdomen the writer has never seen anything approaching a stitch abscess, every incision having healed by first intention. Proceeding with the preparation of the patient, one ounce of castor oil is given on the evening before operation, as it is of the greatest importance that the bowels should be as empty as possible when the operation is performed. On the morning of operation a soap and water enema is given to thoroughly cleanse the rectum.

A cup of tea, or beef-tea, if preferred, with a small piece of dry toast, may be given six hours before operation, and one hour before the patient is put upon the operating table an ounce of brandy should be administered. The nurse must also be sure that the patient has emptied her bladder just before being placed on the table; and in cases of tumour, where a complete emptying of the bladder cannot be relied upon, the catheter must be passed. The clothing of the patient should consist of a warm flannel nightgown, and over it a loose flannel jacket, made to open down the back, to allow of its being easily slipped off after the operation is over.

A pair of clean white woollen stockings will keep the feet and legs warm.

3.—Preparation of Patient on the Operating Table.

In an ordinary case of ovarian tumour, etc., where there is nothing to fear from the patient's assuming the erect position, she can be brought from the main ward to the side room of the theatre by means of a wheeling chair, from which she is placed on the table.

If a nurse is not clear as to what the patient is suffering from, she must first ask the operator if she can be brought in as above, or whether it is necessary to use a wheeling table. A case has been known in which a nurse, without having made any inquiry, put a patient suffering from

extra-uterine gestation into a wheeling chair. The result of this was that very profuse and dangerous hæmorrhage began; and, when the abdomen was opened, it was with great difficulty that the bleeding could be arrested. This may well be a lesson to one and all, to make the fullest inquiry about such a case.

The patient is placed comfortably on the table, her buttocks being in the centre of the Kelly's apron. The nightgown and jacket are carefully rolled up behind, above the inflated rim of the apron, and in front, well up over the chest. The blanket lying at the foot of the table is laid over the patient, while the anæsthetic is being administered.

A folded drawsheet should be laid over the legs a little above the ankle joints and tied under the lower folding leaf of the table, so that, should the surgeon desire the "Trendelenburg" the patient may at once be placed in that position, the nurse having previously seen that the knee joints correspond exactly with the joint between the body and lower folding leaf of the table.

If necessary to secure the patient's hands, it should be done when she is anæsthetised by means of a clove-hitch attached to each wrist. The hands are then raised to the level of the shoulders and secured there by tying the ends of the two bandages under and close to the neck.

The safety pins are removed, and the domett bandages cut in front and pulled out from below

the patient, but neither jaconet nor soak should be touched till the patient is anæsthetised and the operator quite ready to begin.

Then the covering blanket is turned down below the pubes, and two pieces of sterilised batiste or two new pieces of jaconet which have been thoroughly carbolised, are taken. The longer one covers the blanket over the thighs and legs, the part over the pubes having its edge folded in below the blanket, and the shorter covers the upper part of the body, being well tucked in under the folded-up nightdress, and at the sides.

The soak is now removed, and the further preparation of the abdomen falls to the duty of the assistant operator. The second nurse, who has been engaged with all the above preparations, will hand to him a basin of warm lysol lotion and a sterilised swab, by which he may give the abdomen a final wash. He will also probably use ether, which should be at hand. When all washing has been completed, the senior nurse will remove from one casket (the lid being opened by the second nurse) the sterilised overalls for the operator, assistant, instrument clerk, and herself. These will be buttoned on by the second nurse. With everything now ready to begin, the sterilised towels, five in number, are taken from their casket by the senior nurse and placed thus:—two over the legs and thighs, one over the chest, and one upon each side. They are fastened together by sterilised safety-pins or clips, so as to expose only a small

area of the abdomen—about five or six inches square.

The edges of these towels project well beyond the underlying pieces of jaconet, and are not to be turned in.

The operator, assistant, and senior nurse will now soak their hands in the corrosive lotion or “dip,” the senior nurse hands the first swab to the assistant surgeon, and the operation begins.

4.—Precautions to be taken by the Nurse herself.

The nurse who has prepared the patient, brought her into the operating room, placed her upon the table, and perhaps passed the catheter, should not upon any account touch sponges, swabs, or anything that will come into close contact with her during the operation.

She remains in the operating theatre to attend to lotions, supply basins to catch fluid from a large ovarian cyst when punctured, tilt the table into the Trendelenburg position if necessary, and attend to the anæsthetist, should he require anything.

The senior nurse alone has charge of the swabs, sterilised towels, overalls, etc., and the precautions she must take with her hands and arms must not, in any way, fall short of those taken by the operator himself.

It is almost needless to say that she should be in good health. Sore throat, gum-boil, and such minor complaints may seem in themselves insig-

nificant, but they are sufficient to disqualify a nurse in the duties entailed by an abdominal section. Not only, under such circumstances, must she give up her place to another nurse, upon whom she can rely, but it is better that she should not be present at all in the operating room.

Having taken a bath in the morning, she should change her under-clothing and put on a fresh uniform.

On entering the operating room, where everything lies in readiness, she will, in the half-hour that precedes the operation, be engaged in cleansing her hands and arms. Her nails should be cut short, leaving no ragged edges, which might tear the gauze swab, and thus destroy it for use in the abdomen.

All matter must be removed from under the nails by a nail-cleaner. The sleeves should be turned up beyond the elbows, and the hands and arms thoroughly scrubbed with a sterilised nail brush in soap and water for eight to ten minutes, a free lather being produced, and the water changed frequently.

The hands will then be well rubbed with turpentine, after which she will hold them and her arms in running water. The next step is to dip her hands into a basin containing a saturated solution of permanganate of potash. When a deep mahogany stain has been produced, she will then dip them in a second basin containing a saturated solution of oxalic acid, which is rubbed over

the skin until the brown stain is destroyed, after which the oxalic acid is in its turn washed off with sterilised water, any injurious effect of the acid upon the skin being thus prevented. Instead of using the permanganate of potash, etc., the nurse may steep her hands in the corrosive "dip" (1-1000) for five minutes or more. This completes the sterilisation of the hands, and the nurse can now, with every safety, touch the swabs, towels, and overalls which have been sterilised. It is needless to repeat that, after she has thus cleansed her hands, she must be careful *not to touch anything that has not been sterilised*, and if, by accident, she should do so, another wash in lysol and corrosive lotions will be necessary before she can touch the swabs again.

Should two or more cases be operated on in succession, the nurse must, of necessity, again go through the same careful cleansing of her hands that she exercised in the first instance.

5. —Duties of the Nurse during the Operation.

The important duty of the senior nurse during the operation of abdominal section is that of looking after the swabs—six dozen, or in a complicated case, eight dozen, having been got ready.

In the preparation of large and small swabs a definite object is in view. A large one, for instance, is used to cover the intestines to protect them from atmospheric infection. Other large swabs are often

used to pack all round the cyst when it is lifted through the wound just before being punctured, and with the object of preventing ovarian fluid, pus, etc., from gaining entrance into the abdominal cavity. Should the nurse carelessly hand all her large swabs at times when small ones would have served the purpose equally well, she will not be able to supply the necessary large ones, when the surgeon specially wishes to use such. Therefore, to hand swabs of the required size at the proper time will show that the nurse understands her duty. Accordingly, unless specially asked for large ones, the nurse will continue to hand small swabs for the purpose of drying bleeding surfaces. When the bleeding is coming from a point deep down in the pelvis, the nurse should notice this and be ready to supply a series of swabs on holders or grasped tightly by long forceps.

By keeping her eyes open and watching the operation as it proceeds, the nurse will be able, after a little experience, to anticipate the wishes of the operator and thus prevent delay, which is so important, especially when hæmorrhage is present.

At the same time, however, the nurse should not be too intent on observing all the steps of the operation, and must ever remember that each swab that leaves her hand must be returned again before the operation is completed.

This introduces one of the most important duties of the nurse during operation, namely, the *counting of the swabs*. The total number is known, six or

eight dozen as the case may be. In addition, each dozen forms a packet, which facilitates the counting very materially.

The soiled swabs are collected in a basin on the second shelf of the nurse's table, and the number of these must be known at any moment. They should be put into the box for dirty dressings, a dozen at a time, as the operation proceeds, having first been counted by the senior nurse and checked by her assistant.

If there is the slightest doubt as to one being missing, they should be carefully counted over again, as, until it is found, the abdominal wound cannot be closed.

When a swab is missing, it is well to know where, in all probability, it may be found.

The first place to look for a lost swab is, naturally, on the floor. The space between the patient's flank and the lower sterilised towel, and the basin into which the tumour has been placed after its removal, are likely places; and, in the latter, it is not a very rare thing to find missing pairs of artery forceps clinging to the wall of the cyst or tumour.

The surgeon will not close the abdomen before all swabs have been recovered, and the nurse must beware of saying that the number is complete without being *absolutely certain of that fact*. There is more than one case on record, where the missing swab or sponge had not been recovered, until it was found in the abdominal cavity after having caused the death of the patient.

Before leaving the question of the care of the swabs, a word of warning may well be given to the nurse against tearing up any such piece of gauze for the sake of the operator's convenience or her own. By this, reference is made to the making of two or more small swabs from a large one. This is a procedure which is *always severely condemned*, and rightly so, as it, undoubtedly, will give rise to miscalculation and all its attendant dangers.

Any swab or instrument that has fallen upon the floor must be noted, but must not upon any account be picked up by the senior nurse.

The nurse who has charge of the swabs has charge also of the sterilised towels. Of the five applied, that which most frequently becomes first soiled is the one which lies over the pubes. When a towel becomes excessively stained, it should be covered by a clean one, but not removed, as by so doing, the other towels, which are all pinned together, would be disturbed.

The counting of sponges is a much simpler duty than the counting of swabs, because so few sponges are used. Nevertheless, the attention the nurse must devote to her sponges needs to be even greater than when swabs are used. The latter when soiled are not used again during the operation, but the sponge is cleansed and handed to the assistant over and over again. It is advisable here that two nurses should be engaged with the sponges—the one handing them clean to the assistant, while

the other receives them soiled, cleanses and replaces them in the basin of warm carbolic lotion (1-80) or of saline solution. Needless to say, the second nurse engaged in this duty must have her hands and arms as carefully prepared as those of the senior nurse. After receiving the soiled sponges she should thoroughly wash out the blood, etc., in, at least, two basins of warm sterilised water, afterwards putting them in the basin of hot carbolic lotion, where they are ready when required.

Fresh corrosive lotion (1-1000) should be ready



FIG. 16.

in small basins for the operator and assistant, so that they may cleanse their hands from dried blood, etc., during the operation.

When much ovarian fluid has escaped into the abdominal cavity, and especially when pus has entered it, the irrigator (*see* Figs. 16 and 17) is brought into use to cleanse the peritoneum. The best

fluid for irrigation is sterilised water or saline solution. It must not be used at a greater heat than 100° Fahr., and if the thermometer in the

jar indicates a higher temperature than this, cold

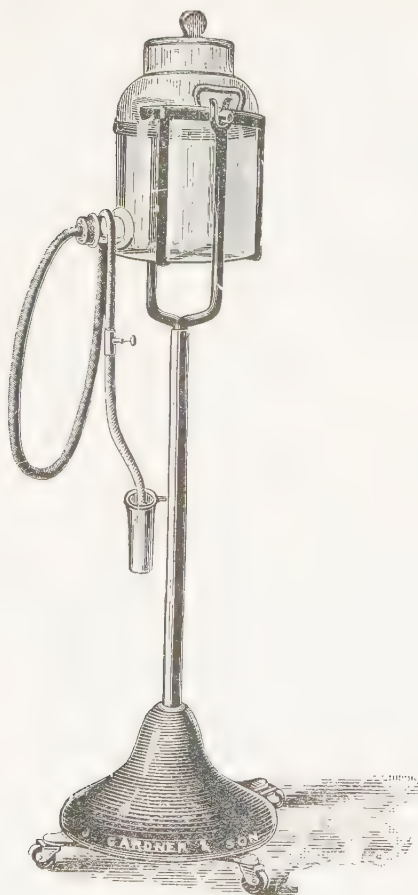


FIG. 17.

sterilised water must be added till the proper heat is obtained.

The nurse, while the irrigation is going on, will be ready to hand swabs on handles, by which all excess of the irrigating fluid which remains in the pouches of the pelvis is removed.

Should the patient have become very collapsed from a prolonged operation, the second nurse may be required to administer a stimulating enema to her while on the table. That most quickly prepared consists of about two ounces of brandy and beef-tea in equal quantities. It should be injected slowly, and prevented from returning by applying pressure to the anus with a towel or swab of wool.

If, during the operation, much blood has been lost, and the patient's condition seems grave, the surgeon will probably resort to the transfusion of saline solution. The solution must be heated to a temperature of 100° Fahr. in the manner described under "Preparation of the Operating Room." Before the operator inserts the needle under the breast, the nurse will see that the fluid is running freely by filling the glass funnel and allowing it to half empty itself. While the solution trickles from the needle it is inserted under the breast, and the nurse will hold the funnel high, so as to give the fluid a greater "head," and allow it to enter the tissues with greater rapidity. The level of the fluid in the funnel must be constantly watched, and it must not upon any account, be allowed to become empty, as, if this should happen, and then more salt solution poured in, a quantity of air would be injected, which might be dangerous. When the

needle is withdrawn, the nurse will cover the puncture in the skin with collodion and gently massage the breast.

The operation finished and the first dressing applied, the second nurse will remove towels, mackintoshes, and the Kelly's apron, and then carefully dry the patient's back, after which the senior will hand to the assistant the additional dressings, plaster, pads of wool, etc. When those are applied, the flannel binder is folded tightly round the abdomen and fixed by safety pins.

The binder should be handed rolled up, and when applied, it should not come too far down to run any risk of being soiled.

When all this is done, the patient should be removed from the theatre to the bed which has been prepared in a manner described in the next section.

6.—Preparation of the Bed of the Patient.

The careful preparation of the bed is a duty every nurse is expected to understand, and many comforts can be thus bestowed upon a patient in the early days of her convalescence.

The two great aims of the nurse in this preparation must be, firstly, to have everything absolutely clean; and secondly, to arrange drawsheets, etc., in such a manner as to minimise the moving of the patient.

Accordingly, the bedstead should be thoroughly cleaned, carbolised, and provided with a clean hair

mattress. All sheets, blankets, etc., must, of course, be perfectly clean.

A drawsheet may be used in various ways, but the following arrangement is found very good. Two drawsheets and two pieces of thin mackintosh or jaconet are required. A large drawsheet covering a large area of the bed, and extending upwards beneath the patient's shoulders, is not only unnecessary, but a great source of annoyance in its removal, which, from its size, is made much more difficult. The drawsheet and jaconet, therefore, should not exceed three-quarters of a yard in width.

The first piece of jaconet is laid across the bed, the upper edge coming to about 12 inches below the pillow. Exactly above this is placed the first drawsheet, which after being carefully laid so that no creases remain, is pinned to the under sheet and mattress by four large safety pins, which also fix the four corners of the jaconet. The second piece of jaconet and second drawsheet are now put on above these and in exactly the same manner.

After abdominal section or vaginal hysterectomy, it is very important that the patient should be moved as little as possible for the first few days; and if the above plan be followed, the nurse will be able, when necessary, to remove with ease the top drawsheet and jaconet, thus leaving the patient on the dry and clean lower drawsheet. To do this the patient should never be asked nor allowed to raise herself in bed. One nurse will gently raise

her, while a second quickly withdraws the soiled drawsheet and top jaconet. It is well known that the removal of a drawsheet is a much simpler matter than the putting on of a clean one; and if due care be taken by the nurse, two drawsheets should be sufficient to last, until all risk in moving the patient is over.

The bed clothes should consist of a light blanket next the patient, and over this a sheet, another blanket, and a light cover. This is seldom found insufficient if the room is kept at a temperature of 60° Fahr.

Just before the operation begins, at least two hot bottles must be placed in the bed and covered up, so that, when the patient is brought from the operating theatre, the bed will be comfortable and warm for her. Two wooden blocks should also be in the room, so that, if necessary, the lower end of the bed may be raised in order to hasten the patient's recovery from the shock of a prolonged operation. In such cases the pillow should be removed, so that the patient's head may be kept low.

The bed to receive a patient after the operation of vaginal hysterectomy is prepared in the same manner.

7.—Nurse's duties immediately after Operation.

When the patient has been put back to bed, the nurse's immediate duties will vary according to the amount of "shock" present. If the operation has been quickly performed and the patient lost but

little blood, there will be probably no shock, and the hot bottles, used to warm the bed while the operation was in progress, will be removed when the patient returns.

If, however, the operation has been prolonged and hæmorrhage excessive, the application of heat to the surface is very necessary. The anxious nurse may do great harm with the hot bottles, if due care is not taken, as a patient not yet recovered from the effects of an anæsthetic, and in the depressed state of vitality brought on by severe shock, may be burned severely by the use of hot bottles. The skin of a patient in this state is as easily destroyed by the action of heat as that of one whose limbs are paralysed from disease. In all such cases, therefore, great care must be taken that no hot bottle is placed too near the skin, and also that *every bottle used is completely covered by a flannel bag*. In cases of shock, also, the foot of the bed may be elevated on bed-blocks (6 to 8 inches in height), thus to aid the return of blood to the heart.

If the pulse does not improve and still continues weak and rapid, an enema of beef-tea and brandy will probably be ordered by the surgeon, and then it will be necessary to prevent its return by applying firm pressure to the anus for at least twenty minutes, by means of a small pad of wool. In exceptionally bad cases, the surgeon may deem it necessary to resort to transfusion, or to administer strychnine, ether, or brandy hypodermically, to

stimulate the heart. A saline enema is sometimes ordered. This is prepared in the same way as for transfusion—a teaspoonful of salt being added to a pint of water.

As an external application for failing action of the heart, the use of very hot fomentations is much to be recommended, and often a pulse will respond to heat thus applied over the left breast when it remains unaffected by other stimulants.

When the first fomentation is on, a second must be got ready to follow immediately, and the successive application of these hot flannel fomentations may be kept up for several minutes, till the pulse shows signs of improvement, which it seldom fails to do under these circumstances. Olive oil or vaseline should always be rubbed over the skin, or a piece of gamgee soaked in olive oil applied, as soon as the last cloth has been removed, to prevent blistering.

After a simple ovariectomy, shock is seldom marked; but after hysterectomy for the removal of a large fibroid tumour, it is sometimes severe and persistent. These are the cases in which while there is life there is hope, and it is extremely gratifying to see a patient, who has returned from the operating table cold, clammy, and almost pulseless, gradually revive, the pulse becoming stronger, the skin warmer, and the temperature rising to normal or higher. To have but once seen such a patient revive, will never fail to impress upon the nurse the necessity of the greatest perseverance on her part to bring about a recovery.

After shock has passed off, the nurse's great aim must be to please and soothe the patient, but, in her endeavours, she must never upon any account give anything which is not in strict accordance with the orders of the surgeon.

The pulse, temperature, and respiration should be taken every two hours, and recorded on the chart. It is also very desirable to sit by the patient and keep a careful watch upon her pulse, the true indicator of her real condition.

Here the fact may be mentioned, that often, after the patient has become fairly conscious, the pulse will suddenly become weaker and the face paler. A nurse who has had much experience in these cases, will know that this indicates the onset of sickness, and it is very instructive indeed to notice how quickly the pulse regains its strength, after the patient has vomited.

It is, therefore, well to know that such ups and downs in the strength of the pulse beat, accurately correspond to the repeated onset and disappearance of sickness due to the anæsthetic.

Should the pulse, however, remain very weak for some time, another enema of brandy and beef-tea, or a hypodermic injection of strychnine will probably be ordered by the surgeon. The sickness which often follows the administration of an anæsthetic usually comes on when the patient has almost become conscious. A small vessel to receive the vomit, and a soft towel to wipe the mouth, should always be at hand. In the act of vomiting the

patient's head should be turned upon one side, so that the fluid can run easily from the mouth.

During the early attacks of sickness, the patient feels but little pain, being still somewhat dazed. In the later attacks, however, when she has become quite conscious, the retching and straining, by stretching the abdominal wound, cause her severe pain.

For the sake of the security of the wound, and no less for the relief of pain to the patient, the nurse should press firmly against the sides of the abdomen, and thus relax the muscles and skin in the middle line, where the incision has been made.

In addition to this relaxation of the tissues, the firm pressure of the hands upon the sides acts like a splint to the abdominal wall, and makes the act of vomiting comparatively painless. Feeble support in this way is of little advantage, and only well applied pressure will give ease to, and earn gratitude from, the patient.

It is only in exceptional cases, nowadays, that drainage of the abdomen is necessary,—a fortunate state of matters for patient and nurse alike.

The tube used is made of glass, and extends from the abdominal wound downwards into the deep pouch of the pelvis behind the uterus, known as the pouch of Douglas.

When there is any danger of hæmorrhage, or when a drainage tube has been used, the nurse must, from time to time, examine the dressings,

and, if excessive oozing be present, she should, without delay, inform the surgeon.

In such a case also, it is a good plan to tear in two, lengthwise, the part of the binder that lies over the abdomen, so that half of it can be easily undone to observe the state of the dressings without unnecessarily disturbing the other half.

With the return of consciousness a patient's restlessness begins, and, while controlling all her movements, the nurse must bear in mind that relief is afforded by drawing up the knees, and should within reason, allow of a movement from which the patient so soon finds relief. It is also desirable to darken the room and maintain quietness to avoid disturbing her in the early hours of her convalescence.

8. After-treatment of the Patient with reference to Duties entrusted to the Nurse.

The greater number of women upon whom the operation of abdominal section has been performed, are very easily dealt with; yet one occasionally has to deal with a highly neurotic patient, the nursing of whom, if the operation has been at all severe, will often be most difficult and trying. To such a patient the nurse must give her undivided attention, and much soothing, persuasion, and patience, will be necessary to keep her quiet, and thus give her every chance during the first few days—the time rightly considered the most critical of her convalescence.

When the effects of the anæsthetic have subsided, and the patient has regained consciousness, the well-known complaints begin. It is remarkable how little abdominal pain these patients seem to suffer, but two complaints are nearly always made—of pain in the back, and intense thirst.

Each of these the nurse can greatly relieve, though not cure at once.

The ache in the back is often wonderfully relieved by placing a pillow under the knees, which have been drawn up. It is not the pillow which relieves, but rather the drawing up of the knees, as by this the lower part of the spine is caused to lie flat upon the bed, and is thus well supported by the mattress — whereas previously with the legs lying fully extended the lower part of the back formed a slight arch, and was entirely supported by muscular exertion, causing fatigue and ultimately pain. Therefore, the real function of the pillow is to support the legs in their new position, and the patient is often very grateful for the comfort thus given.

The thirst which follows the operation is a very distressing symptom indeed, and all the more so as in many of the worst cases, the nurse finds herself bound to consider the dangers which might follow, if she carelessly relieved it. The great difficulty in some cases is the persistence of sickness, and the consequent tendency the stomach has to eject everything that enters it. Just as in the vast majority of diseases, rest to the affected part is one of the important elements of treatment, so, in the case of

a stomach which cannot retain even a little water, complete rest is necessary.

Moreover, the act of vomiting, if at all severe, is not unattended with danger. In many cases, where adhesions have been present, and many large blood-vessels have been tied, the violent movements of the abdominal wall and of the intestines, etc., may cause one or more ligatures to slip, and give rise to dangerous hæmorrhage. Short of such an accident, the straining and retching cause the patient to suffer pain in the abdominal wound from tension on the stitches. For these reasons a nurse must always exercise great discretion in her attempts to relieve thirst. The practice of giving small pieces of ice to suck is not one to be always recommended, as it is invariably followed by an intolerable thirst.

It is only in those rare cases when blood is vomited after operation that it is advisable to give ice. The source of this hæmorrhage has not yet been determined. It may occur where the stomach is quite healthy, and has not been interfered with in the least during the operation. Should it continue it is of serious import, and death has been known to result even when the operation itself was of a fairly simple character.

In giving ice to such cases the best result will be ensured by instructing the patient to *swallow the ice in small pieces*. In this way the melting process will take place in the stomach, and a much better result may be looked for than if the ice had been sucked in the mouth, melted there, and swallowed

in a slightly warmed state, which has absolutely no beneficial effect upon the vomiting of blood, and almost as little upon the much-complained-of thirst.

In relieving thirst, therefore, a good general plan is to begin by allowing the patient to simply wash out her mouth with a little hot water, and to swallow a teaspoonful or two occasionally. Needless to say, the thirst is not thus relieved, but, by repeating the washing-out of the mouth from time to time, a general sense of comfort is given to the patient, and her dry, parched tongue and lips moistened.

The use of an enema of salt and water to relieve the thirst is advocated by some. It only occasionally has the desired effect, and its disadvantages are, firstly, that it disturbs the patient; and secondly, that if more than half a pint is given, it is often speedily returned.

Sickness, due to the amount of the anæsthetic inhaled, is to be expected after every such operation, and continues for various lengths of time, generally about twenty-four hours, diminishing in quantity and frequency until it finally stops. The vomit is, as a rule, green and bilious looking.

When sickness is protracted, a large tea-cupful of hot water, administered in sips, often has a successful result. Almost immediately it is returned with a quantity of bile and sticky mucous matter, thus really cleansing the stomach, and so allaying the sickness and retching. Such sickness differs markedly from

that indicative of the onset of peritonitis, which will be described further on.

After such exertion the stomach must have rest, and therefore for the next twenty-four hours no attempt should be made to administer food to the patient by the mouth. Carelessness in this respect will often again start vomiting, thereby causing the patient much unnecessary pain without bestowing upon her any benefit from the food she has swallowed.

After the first twenty-four hours are past, judicious feeding may be begun; and, obviously, no hard and fast rule can be laid down in this respect.

After removal of the ovaries, or of a simple ovarian tumour, for instance, much more opportunity is offered, and much more liberty can be taken in mouth feeding, than is safe after abdominal hysterectomy, or after an ovariectomy which, from the presence of many adhesions, has been a serious and protracted operation.

Accordingly, on the second day, provided all sickness has disappeared, two or three teaspoonfuls of milk and hot water or potash water, Valentine's meat juice, Wyeth's beef juice, beef jelly, bovril, Horlick's malted milk, peptogenic milk powder, etc., may be given every hour.

On the third day, if all goes well, two ounces of milk and two of potash water mixed together may be given every three hours, care being taken not to administer the whole at once, but to give it from a feeding cup in small mouthfuls at intervals.

On the fourth day the milk and potash may be increased to three ounces of each every three hours, and in addition to this, four to six ounces of chicken broth may be given in the forenoon, and the same quantity of beef-tea at night, the latter with the object of promoting sleep, and, for this purpose, it should be given very hot.

The fifth day's food should consist of the same quantity of milk every three hours. A small tea-cupful of thin soup or beef-tea may be given twice during the day, and, at night, a cupful of well boiled milk gruel.

One feature of the above detailed diet during the first five days is the *absence of all solid food*. Solids are better avoided till the bowels have been moved thoroughly by an aperient given on the evening of the fifth day. The most reliable in its action is castor oil, of which one ounce should be given.

During the night or on the morning of the sixth day, the bowels will in all probability move freely without the use of an enema. It is only now that solid food may be given, and this begins with tea and toast for breakfast. For dinner on the same day a small basin of soup and some custard may be given, to be followed by tea and toast in the afternoon, and milk gruel in the evening.

On the seventh day a little white fish is allowed. All varieties of fish of a fatty nature are forbidden.

On the eighth day, soup and fish may again be given, and on the ninth day, a sweetbread, a piece

of chicken or a small chop may be offered with a little boiled rice instead of potato, which should be kept out of the patient's diet till the third week. From the seventh day onwards, if she can take it, she may have an egg-flip twice daily. Just as a definite object is kept in view in restricting the diet in the early days of the patient's convalescence, so, in the later, food must be chosen and given with discretion in order to avoid the appearance of dyspeptic symptoms, which are always so troublesome to deal with in the convalescence following this operation. Judicious feeding plays by no means a small part in an uninterrupted recovery.

Unfortunately, complications sometimes arise which may hamper and prolong convalescence, or even ultimately cause death. This does not refer to general peritonitis from which recovery is rare, but rather to those cases, fortunately few and far between, in which an abscess forms near the "pedicle" or neck of the tumour. The feeding of such an unfortunate patient is often made difficult by the persistence of sickness due to the fever and prostration which a localised abscess in the abdomen gives rise to. This is doubly unfortunate, as it is in such cases that the necessity for nourishment is so urgent. This introduces a treatment in which even the most experienced surgeon finds difficulties, and, accordingly, the nursing of such a case will tax the resources of the most skilful nurse.

Before going further, mention may be made of some of the symptoms and signs accompanying such

a complication as abscess of the pedicle, all of which a nurse should know in order that the surgeon may be informed without loss of time.

The most important indication of a patient's condition after the operation of abdominal section is given, undoubtedly, by the pulse. One ought always to regard a pulse rate which exceeds 100 per minute, twenty-four hours after operation, with suspicion, especially if it tends to increase within the next twelve hours.

The temperature is by no means so reliable a guide, but is certainly more important here than in general septic peritonitis, where it may never rise at all, or may even be subnormal in a fatal case. In cases of abscess of the pedicle the temperature rises to about 101° Fahr. and then falls, to rise again to the same point or a little higher some hours later. In some cases, rigors or shiverings may be present, when the temperature will often be found to be 103° or 104° Fahr. When it falls a characteristic sign appears, namely, profuse perspiration.

Another symptom is the presence of severe and constant abdominal pain. Constant pain associated with one or more of the symptoms just mentioned, may give the nurse a fairly good idea that some complication, probably of the nature of an abscess, is present. Continued fever, profuse perspirations, constant pain, sleeplessness, and loss of appetite, all materially weaken the patient; and the duty of the nurse must be to maintain the patient's strength, until the pus has escaped by some channel, after

which the distressing symptoms disappear, and a healthy appetite returns.

There are undoubtedly some cases in which, even with such a complication, the stomach does not seem to suffer very much, and while the fever continues, such patients are fed on milk, preferably diluted with potash or soda water. The bowels should be moved regularly by salines, *e.g.*, Henry's solution, one ounce and a half being a medium dose.

The urine should be kept for examination by the surgeon, and the nurse should inspect all stools that she may see if anything abnormal has been evacuated; because, although an abscess of this sort usually discharges through the abdominal wound, it may occasionally do so by the bowel or bladder, and the presence of thick pus in the stool or the urine cannot fail to be recognised by an observant nurse.

To allay the fever, sponging the limbs with tepid water is very good, and comforts the patient. She should, of course, wear a flannel gown, and, when damp from perspiration, this should at once be changed for a fresh and dry one.

For the relief of abdominal pain when inflammation is present, there is nothing better than the application of an ice-bag. This should be partly filled with very small pieces of ice, all air squeezed out, and the lid screwed tightly on. The ice-bag is of little use if applied over several layers of wool, its coldness being thus prevented from reaching

the skin. Accordingly, the immediate dressings of the wound should be covered by a large square of gutta-percha tissue which has first been dipped in corrosive lotion (1-1000). This answers a double purpose; it prevents infection of the wound, and being waterproof, protects the dressings from any moisture from the ice-bag. The layers of wool are now replaced and the binder fixed loosely with safety pins. In cases presenting fever symptoms the surgeon may order alcohol in the form of brandy, whisky, or champagne; and here it is absolutely essential that the nurse should give the *exact quantity* at each dose and at the intervals prescribed. Champagne is perhaps the best stimulant to employ; it should never be diluted, and should be discontinued if the patient begins to suffer from diarrhoea, when the surgeon will, in all probability, substitute brandy or whisky.

Comparatively fortunate, however, is a patient who can take a sufficient quantity of milk and stimulant by the mouth. In the case of those who cannot, the nurse must endeavour to give nourishment already digested and ready to be absorbed, in the shape of peptonised foods, so that the digestive powers of the weakened patient are not taxed.

Peptonised milk is the best. The chief digestive fluid that acts upon the milk is the juice of the pancreas or "sweetbread," and this, as used, is called the Liquor Pancreaticus. A powder of the same nature, though not quite so efficient, is often used for the purpose. It is put up in tubes by

various chemists, one of the best being Fairchild's peptonising powders.

In the method in which the milk is prepared by heat, it is advisable to draw the nurse's special attention to the fact that, in order to stop fermentation after the process has gone on for half an hour, the milk must be *brought to boiling point*. If prepared cold, and used after the milk has been acted upon for three to four hours, boiling is not necessary, but, in case it should not be used soon after its preparation, may be resorted to. If the milk is allowed to stand for five or six hours, and the action of the pancreatic juice allowed to go on, it will become very bitter and unpalatable.

Peptonised beef-tea for such patients may also be used.

Difficult as such treatment may seem, it is easy compared with that which must be followed in the next and more serious condition, in which the stomach cannot retain even predigested foods.

In such cases it is that rectal feeding by the use of nutrient enemata is required. In this form of treatment several principles must be distinctly understood.

The lower part of the bowel or rectum has not the digestive powers of the stomach, therefore, all materials used must be predigested and ready to be absorbed. In the next place, as one can easily understand, a clean surface is much more likely to absorb a nutrient enema than an unclean one, therefore once at least in twenty-four hours the

rectum should be washed out by an enema of warm water.

Again, from one's experience in giving simple enemata to produce a motion of the bowels, it is found that the larger the quantity given, the quicker is it expelled.

From this is learned a most important fact in the use of nutrient enemata, namely, that a large quantity will not be retained. Moreover, the smaller the enema given the more likely is it to be absorbed, and, at the same time, the less likely to make the bowel irritable and unwilling to retain anything that enters it. In quantity, it should not exceed four ounces. This will, in most cases, be easily retained, and can be repeated every six or even every four hours. The usual ingredients used are milk, beef-tea, and eggs, all predigested before injection. In addition, a very valuable aid to absorption is obtained by adding a pinch of fine table salt. This should never be forgotten.

Brandy is often required to stimulate the patient, and then it will form part of the nutrient enema, being added when the other ingredients are peptonised.

In giving the enema the patient should not be unduly disturbed, nor need she be exposed in any way. All that is necessary is to remove the pillow from under the knees, and draw up and separate the legs a little. The left index finger locates the anus, while the right hand holds the clyster bag, or ball syringe, in readiness. The nozzle, well

oiled, is gently and slowly introduced into the rectum, after which the bag is slowly squeezed in the palm of the right hand till all its contents have been injected, when it is at once withdrawn.

Clyster bags are made in various sizes—those of two, four, and six ounce capacity being most generally used in hospital. They are most useful for the administration of small enemata, as it is impossible, if the nurse presses her thumb against the side of the bag till its contents begin to appear at the mouth of the nozzle, to inject any air; whereas, if a Higginson's syringe is employed for this purpose, it is almost impossible to avoid introducing air.

Should a nurse have to administer a three-ounce enema by means of a four-ounce bag, she must take care to expel all air in the manner indicated above, before introducing the nozzle into the bowel. This is very important, as, should the bowel be distended with air, it brings on a desire to immediately expel what has entered. The higher up an enema is injected, the more will be absorbed, so if a long nozzle is available, it should always be used, and introduced very carefully.

Rectal feeding can be kept up for many days with sufficient benefit to the patient to tide her over a serious illness. In the course of the treatment, however, the bowel may become very irritable, especially if brandy has been a constituent of the injections. To overcome such a difficulty this may be omitted, and ten to fifteen drops of

laudanum added, an alteration, which must, however, be approved of by the surgeon before it can be made.

Feeding by this method, as has already been said, is adopted to maintain the patient's strength, and give the stomach the rest it requires. After a few days' rest, however, a small quantity of food can generally be taken by the mouth, and if such an opportunity offers itself, it should always be taken advantage of, though not abused to the extent of bringing on sickness again.

The enemata may be continued at longer intervals, but should not be altogether stopped when the patient finds herself able and willing to take food in small quantities by the mouth.

Finally, in connection with rectal feeding, it is necessary to point out that this method is also to be employed in bad cases of sickness from the anæsthetic, when the ordinary methods of treatment fail to produce any effect at a time when the patient requires some nourishment. By this is meant a case in which vomiting persists for a length of time, varying from thirty-six to forty-eight hours or more.

Having described a complicated case and its treatment, especially the feeding of the patient, attention must now be given to one in which convalescence is normal and healthy.

It must be distinctly understood, that a number of patients after abdominal section may make equally rapid recoveries without showing the same

sequence of events. For example, one patient may be able to pass urine naturally a few hours after operation; another may not be able to do so for two or three days; while still another may require the use of the catheter for five, six, seven, or even more days.

These minor complaints of a normal convalescence, differing in different patients, will now be described, before introducing a short account of a case in which peritonitis develops, where symptoms are present resembling those which may be complained of by a perfectly healthy patient, but which, of course, are accounted for in quite a different way.

Absolute inability to pass urine after the operation of abdominal section has been performed, is by no means uncommon.

The nurse may without risk allow ten hours to elapse before asking the patient to pass urine. During that time a fairly large quantity of urine will have accumulated in the bladder, and the patient has a much better chance of success in passing ten or twelve ounces than she would have, if asked to pass urine sooner, when the bladder contained but a few ounces. Should she succeed, the urine must be carefully measured and the amount recorded on the chart. The urine may be passed into an ordinary bed-pan, but the best vessel to use is a small slipper-pan, which from its shape does not cause the patient much inconvenience. Great care should be taken that she is not allowed, even

though willing, to raise herself in order to allow the nurse to place the bed-pan beneath her. All exertions are dangerous and may be followed by sudden collapse. Short of such an accident, which is happily of rare occurrence, any exertion on the part of the patient strains the abdominal wound very much. She must, therefore, be gently raised by the nurse, who will find the slipper-pan very advantageous.

With a few exceptions to be immediately referred to, all patients should be encouraged to pass urine naturally from the beginning. The catheter, if once passed, will probably have to be used for several days before the bladder will begin to act. Firstly, therefore, the catheter may be required for a patient who has failed to pass her urine. In such a case, it must be passed every six hours with strict antiseptic precautions and "by sight," the urine being on each occasion measured and charted. Anything abnormal in the urine should be noted, and a specimen kept for the surgeon to examine.

After a time, which varies with every patient thus treated, the bladder will begin to act, and the patient will be able to pass her urine naturally. Even in what seems to be a comparatively trifling part of the after-treatment of a case, a nurse may learn much from observation. Thus a patient, who has required the catheter for two, three, or more days, may begin to pass urine differing entirely from that drawn off by the catheter.

The appearance of blood in the urine which has been passed naturally, is no uncommon sight, and alarming as it may seem, is not so in reality, as it comes from the uterus, is passed into the vagina and mixes with the urine upon micturition. This knowledge will save the nurse from making much unnecessary fuss, and prevent her from showing her ignorance and want of experience by excitedly informing the surgeon that blood has been passed in the urine.

This false menstruation appears at different times and continues for various lengths of time in different cases. It may appear immediately, or any time within three or more days after operation, and may continue for days, a week, or even for a fortnight. To soak up such discharge, sublimated wood-wool, slightly teased out and made into a soft pad placed firmly against the external genitals, may be used, and answers the purpose very well. It should be frequently changed, and the parts gently swabbed with warm boric lotion before a fresh pad is applied.

As already mentioned, there are certain cases in which the use of the catheter is indicated from the beginning, without giving the patient the chance of emptying the bladder of her own accord.

After a very severe operation such as a hysterectomy for the removal of a large fibroid tumour, or an ovariectomy, which has been complicated by adhesions, etc., where there is a risk of hæmorrhage or where the patient is suffering severely

from shock, the nurse should at regular intervals draw off the patient's urine for three or four days, after which it may be discontinued, if she can then pass it naturally.

If the catheter be used properly, a nurse can always feel sure that she has withdrawn all the urine that was in the bladder. Such is not the case, however, when the urine is passed naturally, as from time to time one has to deal with a patient who will pass urine in small quantities very frequently.

In such a case a nurse must be on her guard, and if abdominal pain should begin, chiefly in the lower part of the abdomen, and probably without any rise in the rate of the pulse or range of the temperature, a nurse has good reason to think that the patient's bladder is distended and only the overflow being passed. With permission from the surgeon she will then pass the catheter, and will be surprised sometimes to draw off as much as forty or fifty ounces.

This done, the frequency of passing urine will disappear, as also will the abdominal pain previously complained of. For the next few days, however, the nurse must measure all the urine passed in twenty-four hours so that she may know if the quantity is sufficient. The normal quantity is about fifty ounces in twenty-four hours.

In drawing off the urine from a distended bladder it is very advisable to allow that organ to empty slowly, that it may regain the power which, from the stretching of its walls, it had almost lost. This is done by placing the index finger, at intervals, against

the open end of the catheter. After eight or ten ounces have escaped—to be judged approximately by the eye—the flow may be stopped for one or two minutes, after which, another ten ounces may escape and the blocking of the catheter be repeated, until the bladder has been emptied.

Just as the power of the bladder varies, so also does the power of the bowel in different cases, where the convalescence is perfectly normal.

This introduces the subject of the passage of flatus which, when interrupted, gives rise to abdominal distension and pain, and requires treatment.

Naturally a nurse may ask herself why a patient, after the operation of abdominal section, should be unable to pass flatus, and wherein the importance of this lies? Flatus is passed by the action of the bowels, and anything that interferes with such action will render the patient unable to pass it. In a difficult operation the exposure and the necessary manipulation of the bowels together cause a temporary paralysis with inability to pass flatus, especially as the patient is afraid to strain.

Such is the explanation in a case where all goes well, but a much more dreaded cause of inability to pass flatus is the onset of peritonitis, which so frequently causes death, and the importance of noting the passage of flatus, therefore, lies in the fact that, if the act be performed freely, the dread of peritonitis is very much diminished.

As the bowel takes a longer or shorter time in different cases to recover from the temporary

paralysis, so, in one case flatus may be passed as early as twenty-four hours after operation, and in another not until the second or third day. Should flatus not be passed during the first two days, a nurse need not be alarmed. If three days have passed, however, and still no flatus is expelled, the patient usually begins to complain of abdominal pain and discomfort due to the inflated condition of the bowels. Although such discomfort coupled with inability to pass flatus is frequently a symptom of peritonitis, yet, it can, and often does, occur in an ordinary convalescence.

An easy and practical method of estimating the amount of distension present is to pass the hand under the upper edge of the binder and palpate the epigastrium or "pit of the stomach," a method which does not necessitate disturbing the patient in the least.

Many patients manage to pass flatus within the first three days following operation.

Upon being questioned by the surgeon a nurse must, however, be able to give him particulars as to the amount passed.

Just as the catheter is required in a case where urine cannot be passed, so, when pain begins from inability to pass flatus, enemata are used.

There is no better enema for the relief of flatus than that which consists of one ounce of Henry's solution, one ounce of pure glycerine, and two ounces of water. It is nearly always successful, and is to be the more recommended as it is so much cleaner

and more easily given than an enema of turpentine and soap and water. Moreover, as it contains no poisonous ingredient, it matters little whether it is retained or not. Being only a four-ounce enema, it can remain in the rectum for a considerable time. A pad of wool to protect the bed is quite sufficient when it is returned, and so the patient need not be troubled with a bed-pan. This enema usually has the desired effect within half an hour, but should it fail to act within an hour, a second one may safely be given, after which flatus is usually soon expelled in quantity.

The use of turpentine is not so satisfactory, because, as every one knows, when given in large doses, whether by the mouth or rectum, turpentine is a powerful poison. To be of any use in encouraging the passage of flatus not less than one ounce mixed with a pint of soap and water is required, and this amount is much too large to be retained with safety to the patient. Therefore, in the use of turpentine, a nurse must remember that she is dealing with a poison.

A case has been known in which an enema containing two ounces of turpentine was retained by the patient all night, and followed in the morning by marked symptoms of turpentine poisoning. Therefore, every nurse who administers a turpentine enema *must make sure that it is all returned from the bowel*, and to ensure greater safety, after it has been expelled, should give a simple warm water enema in order to wash the bowel clean.

There is yet another enema which has often succeeded where others have failed. It consists of fifteen to twenty grains of sulphate of quinine, ten minims of *dilute* sulphuric acid or *dilute* hydrobromic acid, and four ounces of water.

The quinine is the active ingredient of this enema—the acid being used to dissolve it, as it is insoluble in plain water.

This enema should not be given unless by order of the surgeon. When enemata fail to give relief the rectal tube must be tried.

This should be introduced slowly and very gently into the rectum, and left in position in order to carry away any flatus that accumulates.

It may be left for hours without producing much discomfort. Before introducing it the nurse should see that the channel of the tube is quite clear.

A rectal tube may not always be available, in which case the vaginal piece of an ordinary Higginson's syringe may answer the purpose. Cases so obstinate as to resist all enemata and the rectal tube, require purgatives in the form of calomel and salines given by the mouth. Such treatment is, of course, entirely in the hands of the surgeon.

Before concluding these remarks on the treatment during convalescence, it will be advisable to deal with that of the abdominal wound while the patient is still in bed, and also with the precautions taken to avoid further trouble in later life. In the majority of cases the dressings placed over the wound after the operation is ended, do not require to be disturbed

until the stitches are removed. This is usually done from the ninth to the twelfth day after operation. The nurse must see that the patient's bowels are moved freely on the morning of the day upon which the stitches are to be removed, and if there be any distension of the abdomen, an enema of Henry's solution, glycerine and water, should be given, in order that it may be as flat as possible when the stitches are removed. If distended, the surgeon may think it better not to remove the stitches for fear of too much tension causing the young scar to yield. The various articles to be got ready for the removal of the stitches are :—One pair of dissecting forceps, one pair of sharp-pointed scissors, two pieces of jaconet, two or three sterilised towels, several sterilised swabs, iodoform gauze, corrosive wool, warm carbolic lotion (1-40), or corrosive lotion (1-2000), adhesive plaster, and a new binder. The forceps and scissors should be boiled, and then put in the warm lotion. When everything is ready, the nurse will undo the binder and remove it, also the layers of wool. She then, after raising the patient, will slip one piece of jaconet beneath her, after which she will place the other piece so as to cover the pubes and the blanket which remains covering the thighs. This will then be covered with a sterilised towel, as also the patient's gown, which must, of course, be first rolled up over her chest.

When there is little or no discharge the gauze may be easily removed, without using a lotion to moisten it; but, if much bloody discharge has issued

from the wound and has hardened the dressings, thus causing them to adhere closely to the incision, some warm antiseptic lotion must be used to soften them, and allow of their easy removal. If the wound be a small one, the surgeon may remove all the stitches; if, however, a large incision has been made, he may prefer to leave a stitch here and there, in order to ensure greater security.

In such a case, the stitches that are left may be taken out one or more days later. Whether a few stitches have been left or not, an abdominal wound should always be "strapped." This is done by the use of two or three pieces of adhesive plaster, and the best width of strapping for this purpose is one to one and a quarter inches. It is advisable that each piece should extend on either side well out beyond the wound, which is now covered by a fresh gauze dressing.

Before fixing any piece of strapping, the two sides of the abdomen should be gently pressed inwards towards the wound, and this pressure kept up till the plaster has been securely fixed.

The well-known device of splitting the ends of the pieces of strapping, in order to obtain firmer adhesion, may be used here with advantage.

Corrosive wool in one or more layers is now placed over the gauze and strips of adhesive plaster, and the whole fixed securely by a new binder firmly applied and kept tight by several safety pins, running parallel to the free edge of the flannel. A wound

which has healed by first intention, and from which all stitches have been withdrawn, need not be again examined, till everything is removed for the purpose of measuring the abdomen for a belt, preparatory to allowing the patient out of bed.

In the large majority of cases of abdominal section where, before operation, great care has been taken to render the skin aseptic, the wound will heal in this satisfactory way. In some cases, however, before the time has arrived for the stitches to be taken out, owing to the presence of pain and irritation in the wound, and an accompanying slight rise of temperature, all dressings may require to be removed in order to inspect it.

With such symptoms, one may nearly always be certain of inflammation, either in the form of a general redness, if early, or in the form of small stitch abscesses, if later. If there is much redness round a stitch, it is removed by the surgeon before pus can form, as will also a stitch round which there is any pus. Septic mischief in a wound, therefore, delays the process of healing, necessitates the premature removal of stitches, causes pain to the patient, and leaves an ugly, unsatisfactory scar. In addition, a septic wound requires to be dressed every day, causing much trouble to both patient and nurse.

Such a wound, from which many stitches have been removed, requires to be firmly strapped, and in many cases, the skin to which the strapping adheres becomes sore and excoriated. For this

a very useful dressing is the well-known zinc-ichthyol muslin. Pieces of suitable size are cut and laid over the skin, and under the action of this dressing all irritation soon disappears.

A patient, who has made a good recovery from the operation, is allowed to sit up in bed upon the fourteenth day, and a week later, with the surgeon's permission, may be allowed to get up. Under no



FIG. 18.

circumstances whatever ought a nurse to allow her patient out of bed without the support of an abdominal belt (*see* Fig. 18). Each patient must therefore be provided with a comfortable, well-fitting belt, and have it impressed upon her that she must not upon any account attempt to get up without it. The most important part of the belt is the pad. This should be large, flat, and firm; made of some material which is resistant, but, at the same time,

as light as possible. Padded cork is most commonly used, but in the case of a long incision, a very good, reliable, and light pad may be made of aluminium, padded on the surface which lies next the scar.

To retain the belt in position and prevent it from slipping upwards, which it has always a tendency to do, under-straps of rubber tubing or chamois leather are supplied. These are fixed to the belt in front and behind, and do not chafe the skin.

As a patient requires to wear such a support for several years, a nurse should advise her at the beginning to buy two sets of under-straps, so that, when one pair is worn out, the other may take its place without loss of time. The pressure of the belt is regulated by the lacing at the back.

The measuring of a patient for a belt should be left to one who has had some experience in the work, and should not be undertaken by a nurse, unless under very special circumstances, when instructions for the proper measurements will be sent by the maker to her.

The reason for using a belt is that there is a great tendency for the scar to yield from the constant pressure of the intestines, when a ventral hernia would result; and this especially where the abdominal walls have been greatly stretched, thinned out, and have lost to a great extent their muscular power. Such a hernia, besides being a source of great discomfort, is, if it remain unreduced, a constant danger to life, the danger lying in the fact that,

at any moment too much bowel may escape from the abdomen through the rupture in the abdominal wall, giving rise to what is known as "strangulation," with all the symptoms of obstruction of the bowels, and ending in death, unless operated upon at once. The importance, therefore, of the abdominal belt cannot be over-estimated; and in the experience of the writer, all cases of ventral hernia occur in those patients who have either neglected to wear a belt, or who have, from broken under-straps or other deficiencies, put it aside, and continued their ordinary duties without any support at all. Before the nurse adjusts the belt to her patient for the first time, preparatory to allowing her to rise, she must cleanse the skin of the abdomen, removing from it by means of a little ether, all detached flakes of epidermis, and any sticky material which remains from the application of the plaster used for strapping the wound. A patient, when allowed out of bed for the first time, must not be expected to be strong enough to walk. For the first few days she should be assisted either to a couch or to a wheeling chair. Gradually strength is regained and less and less support is required, so that, at the end of a week, she may be able to walk slowly without any help. After this, convalescence is rapid, and such patients are able to leave the ward from four to five weeks after operation in a state which allows them to attend to their lighter household duties within a very short time.

Although, in hospital, some surgeons allow a patient out of bed at the end of the third week, yet others, even after a simple abdominal section, refuse to allow their patients to get up till the end of the fourth, fifth, or even the sixth week, so as to avoid all accidents and make assurance doubly sure.

In the nursing of private cases, a nurse will find that her patient is usually confined to bed for four or five weeks.

It must not be understood, however, that in hospital all cases of abdominal section are allowed out of bed at the end of three weeks. Although there are many such, all difficult cases, and all where there are complications discovered during operation or arising during convalescence, are kept in bed for longer periods. In such cases a nurse must always be entirely guided by the surgeon.

Before passing on to a short description of septic peritonitis, it may be well to recapitulate the common causes of abdominal pain after operation, as being a symptom, it varies according to its origin in its severity and in its response to treatment.

Pain following operation, and complained of on the recovery of consciousness, may, with a moderate degree of safety, be considered as due to the operation itself. If so, it is seldom very severe and requires little treatment.

Pain arising after twenty-four hours may have several causes.

It may indicate the beginning of septic peritonitis.

It may be the sign that some complication, such

as an abscess within the abdomen, is about to take place.

It may result from distension of the abdomen caused by the accumulation of flatus in the bowel.

This last, when arising from the usual causes, does not, as a rule, trouble the patient till the third or fourth day, and with it there is little or no rise in the rate of the pulse or the range of the temperature.

Pain arising from the fourth to the seventh day may again be from a severe complication, but, when limited to the middle line, is probably due to a septic wound, or, in a small number of cases, possibly to a distended bladder.

The treatment of these various causes of pain has been already alluded to, but before leaving the subject the writer would like to earnestly impress upon all nurses, who may read these notes, the necessity of doing all that lies in their power to ease and soothe the patient, and thereby obviate the necessity on the part of the surgeon of ordering morphia, which he may sometimes most reluctantly be compelled to do. When once given, no doubt with quick relief to the patient, it masks all symptoms of the progress of the case, thus giving him a great deal of trouble and anxiety, and, possibly, also protracting the convalescence.

Septic Peritonitis

from a nurse's point of view, as being the one who is held responsible for the aseptic condition

of all appliances, lotions, swabs, etc., in use at the operation, *each of which* may be the origin of this very fatal disease, the onset of septic peritonitis and its close in death, must always be a source of serious misgivings and trouble of mind.

Every nurse may well be cautioned to take the same care with her hundredth case that she did with her first, and to realise that, if "familiarity breeds contempt" in the preparation for a case of abdominal section, the enemy, now so well fought in our modern hospitals by our antiseptics and personal cleanliness, will issue victorious and cause the patient's death.

What, then, is the sequence of events, and what are the symptoms and signs to be observed in a case where septic peritonitis has set in?

The most important indication is the rate of the pulse. Twenty-four hours after operation the pulse indicates to surgeon and nurse alike the gravity of the case. Should it exceed 100 per minute, there is room for anxiety, if above 110 it is of serious import, while to be above 120 per minute so soon after operation, means almost always a rapid and fatal termination.

The character of the pulse is of great importance also, for, in addition to its rapidity, it assumes in this disease, a hard throbbing beat, which, when once felt, will seldom be forgotten. It is the rapid rise that is so ominous, as compared with the rate twelve hours after operation. If the operation has been a serious one and shock marked, the pulse

might, even after twelve hours, have a rate of 130 per minute. A fall from this to 120 twelve hours later is not in any way of the same importance, as would be the case, where, after a simple operation, the pulse had risen from 100 to 120. The tendency, therefore, of the pulse to rise or to fall is almost as important as its actual rapidity.

If peritonitis has set in, the pulse will maintain its tendency to rise higher and higher, hour by hour, until it begins to "run"; then it becomes imperceptible, and continues so till death results.

In the worst cases the patient dies within thirty-six hours after operation, in others after three, four, or five days.

The temperature does not indicate in the same degree the gravity of the case. In many of the very worst cases, proving fatal within thirty-six hours, the temperature remains subnormal—perhaps 96° Fahr. or 97° Fahr.—showing how the patient has collapsed under the poison.

Rigors or shiverings are very rare. In cases, however, in which the patient survives until the third, fourth, or fifth day, a rise in the temperature to 100°, 101°, or even 102° Fahr. may be seen.

A nurse should, therefore, trust to the pulse more than to the temperature for reliable information.

Pain, usually felt all over the abdomen, is generally complained of, but is not so severe in a rapidly fatal case as it is, should the patient survive for a few days, when it becomes intense. With the

pain there is an accompanying restlessness and loss of sleep; and in the patient's face one can see all too plainly that the dreaded disease has got a foothold. So characteristic an appearance is present that it has been well termed "the abdominal look." The skin becomes sallow and the expression one of anxiety, merging often into one of drunkenness with a confused look in the eyes. It is an appearance which a nurse can hardly be expected to recognise, if she has not already seen it.

The bowels become paralysed, and as a rule no flatus is passed spontaneously. Enema after enema fails to restore to the bowels the power they have lost; and, accordingly, no flatus is passed even after such remedies have been tried.

Another word of warning may be given here. When an enema has been given and air has been accidentally injected, the return of the fluid with the air must not be thought to be the passage of flatus. With the arrest of the passage of flatus there is obstinate constipation, and, as the result of both, abdominal distension begins. In cases which are rapidly fatal, the abdomen is often quite flat. It is, therefore, in the more prolonged cases that the symptom is usually so well marked.

The distended abdomen is very tender all over its surface, and seems as if it would burst. To still further increase the agony of this disease, another symptom is almost constant vomiting. Should the patient succumb early, this may be mistaken for

a prolonged sickness from the effects of the anæsthetic, but it does not resemble this in any way. The vomiting of peritonitis is not accompanied, as a rule, with a feeling of sickness, which is the great cause of vomiting after an anæsthetic. Severe retching is often the forerunner of the act of vomiting in this disease, and when it begins, nothing seems to be able to relieve the patient; the contents of the stomach simply well up in mouthfuls, and are rather allowed to run from the mouth than thrown out forcibly, as is the case in ordinary vomiting.

The vomit is at first bilious, but soon becomes of a brownish colour with a very disagreeable odour.

To a nurse who has had a considerable surgical experience, many of these symptoms will remind her of a case of obstruction of the bowels. In reality, this is what has taken place, the cause being the inflammation within the abdomen, which has caused paralysis of the intestines.

With the continuation of these symptoms the patient's strength soon fails, the pulse becomes imperceptible, the limbs cold and clammy, and, though some patients remain conscious to the end, many pass into an unconscious state and remain thus for several hours before death.

Washing out the abdomen may be resorted to by the surgeon, in which case, nearly all the preparations requisite for abdominal section must be gone through by the nurse.

In the majority of cases such treatment is of little avail.

Under strict orders from the surgeon, rectal feeding, the administration of stimulants by the rectum, the use of hypodermic injections of drugs like strychnine, etc., to stimulate the heart, of anti-streptococci serum to kill off as many of the organisms as possible—and possibly also, when all hope has gone, the use of morphia—form the substance of the unsuccessful treatment of septic peritonitis.

Hæmorrhage.

Of all accidents that may take place after an abdominal section, hæmorrhage into the abdomen is, perhaps, the most dreaded, as it is the most liable to cause death.

After major and difficult operations the danger of its occurrence must always be borne in mind, but it may take place and terminate fatally even after removal of the ovaries, which is probably the simplest operation in gynæcology requiring abdominal section. Such an occurrence is easily explained. When an ovarian tumour, for instance, is removed, its "pedicle" or stalk containing large blood-vessels is ligatured with silk. Should the ligature remain firm and tight, as it was tied, there is no danger whatever, but if after continued retching and straining, such as attends sickness from the administration of an anæsthetic, the ligature should become loose, or what is still more dangerous, completely slip off,

there will be profuse hæmorrhage, which being hidden and uncontrolled, will quickly prove fatal. Hence the importance of the statement made in the early pages upon abdominal section *that the nurse should keep a constant watch upon the pulse of her patient.*

If this terrible accident should occur, the only hope of saving the patient lies in the early recognition of the condition by the nurse, and, what is still more important, in the early arrival of the surgeon. Once recognised, therefore, the nurse must send for the surgeon without a moment's delay.

Meantime, she will lower the patient's head by removing all pillows and also raise the foot of the bed upon two bed-blocks. She will get ready for the surgeon's use saline solution (as before described) three or four pints, at the required temperature (100° Fahr.).

Sterilised swabs and towels, boiled silk, silkworm gut and catgut, sterilised water (three to four gallons), antiseptic lotions, artery forceps, scissors, needles, and irrigator must all be got in readiness with the greatest possible speed.

The signs and symptoms that will lead a nurse to suspect that hæmorrhage has begun, are as follows:—

The pulse, which after operation was steady and slow, begins to quicken markedly, to become small and gradually feebler, and as such to contrast greatly with the fairly strong pulse the patient

had but a short time before. This state of affairs gets worse every minute, more rapidly, of course, if the bleeding be from a large vessel than from a small one. Should the bleeding be profuse, within a very short time the pulse will have become so faint that it will be almost impossible to feel it at the wrist, in which case, it may be felt fairly distinctly in the large blood-vessels of the neck.

Shortly after the pulse has begun to quicken in this way, the patient will complain of a feeling of sickness, but more especially of faintness.

Stress may again be laid upon the fact that sickness resulting from the administration of an anæsthetic has a distinct and different effect upon the pulse. Before the act of vomiting, if a nurse carefully watches the pulse, she will notice that it becomes suddenly small and more difficult to feel at the wrist, and upon asking how she feels the patient will tell her that she is going to be sick. Then when the vomiting is over, if the nurse again feels the pulse, a marked change will be noticed—it will have regained its strength just as suddenly as it lost it.

Although by such sickness the pulse becomes small, the nurse's attention is especially drawn to these facts—that firstly, although feebler it does not necessarily become quicker, in fact, is often slower in its rate; and secondly, that the change is a sudden one, as also is the marked improvement when the vomiting has passed off.

Such is not the case with the feeble pulse of hæmorrhage, as then its rate is greatly increased, and unlike the pulse during sickness, *tends to become rapidly worse*. Fortunately, the pulse is by no means the only indication by which a nurse may be guided.

Hæmorrhage is soon detected by looking at the patient's face. She becomes paler and soon blanched, and looks as if she had fainted. Her skin becomes white, as also do her lips, and a clammy perspiration quickly appears. At this stage she may complain of great thirst; but after abdominal section, this is frequently complained of when no hæmorrhage whatever exists.

These signs and symptoms are, in themselves, quite sufficient to justify an opinion on the part of a nurse that hæmorrhage is going on, and she should, without longer delay, send with all speed for the surgeon. If allowed to go on still longer unchecked, many fresh symptoms will appear. The patient begins to hear noises in her ears, her sight becomes dim, and when spoken to she appears to be slightly deaf. A marked sign is her restlessness, which gets worse and difficult to control, and she becomes extremely breathless and cries for air. Her voice becomes weaker, in her restlessness she throws her arms about, her breathing becomes more and more rapid and gasping, unconsciousness sets in, and death results. Such is the sad scene following after such an accident; and the various stages are nearly always the same in all cases.

Some cases are more rapidly fatal than others, and may terminate before the arrival of the surgeon; many, however, have been saved, and of these a large number owe their lives to the early recognition of the accident by the nurse, followed by the speedy arrival of the surgeon.

In the description of the above signs and symptoms, reference is made to cases in which the abdomen has been completely closed. In cases where a drainage tube has been used, there is no excuse whatever for a nurse failing to notice a profuse hæmorrhage in its first stage. In such a case, the dressings should be frequently examined, and the surgeon informed if the discharge is excessive.

All nurses should be warned against the giving of stimulants to a patient who is, so to speak, bleeding to death.

After the loss of a large quantity of blood the patient is said to "faint," and in a faint the pulse grows weaker, which means a weakening of the heart's action in pumping blood through the vessels. This being so, further bleeding is greatly diminished and clots may more easily form in the gaping blood-vessels, thus blocking them up and stopping the hæmorrhage altogether.

The best thing a patient can do, therefore, under such circumstances, is to "faint." To give stimulants strengthens the action of the heart, and accordingly the bleeding, almost arrested, begins afresh, and clots by which the hæmorrhage might have been

stopped, are prevented from forming in the vessels. When the surgeon arrives he will, in all probability, begin to transfuse the patient with the saline solution, which has been got in readiness.

Meantime, everything necessary for again opening the abdomen and securing the blood-vessels must be almost ready. When the abdomen has been opened, the blood sponged out, and the vessels tied, the surgeon will either close it again completely or use a drainage tube. Stimulants may *now* be given according to directions, and the nurse must once again give her undivided attention to her patient.

CHAPTER XVI

THE PREPARATION OF SPONGES AND SWABS

WITH the advantages which the present day offers of sterilisation by steam the use of the swab is now generally preferred to that of the sponge.

As, however, there are many surgeons who still prefer the use of sponges in abdominal operations, a short description of how they should be prepared and kept may suitably be given here.

It must, first of all, be thoroughly understood that this duty is an all important one, haphazard preparation being not only unfair to the operator, but dangerous in the extreme to the patient. Sepsis in the abdomen is a difficult enemy to combat, and there is little doubt but that many a patient has died from the infection carried into the abdominal cavity by a sponge.

Sponges, of the best quality only, should be selected, each one being examined to see that it has neither loose nor ragged edges. This careful inspection is absolutely necessary, when one considers that, in the course of an abdominal operation, each sponge may be used several times, and

that, with a ragged sponge, there is the greatest danger that a piece may become detached and left behind in the abdomen, probably setting up peritonitis, and ultimately costing the patient her life.

Having selected the sponges in this way, they are put into a bag, and the first part of the preparation begins in the loosening of all sand from the tissue of the sponge. This is done by beating the bag upon a hard table. A nurse cannot take too much trouble over this, as it is astonishing how much sand and small stones they contain. As this is not all got rid of by the beating process, the sponges are now washed over and over again in warm water. After this they are put into a glass or china jar containing a solution of hydrochloric acid (half an ounce to a quart of water), and left there for a period of twenty-four hours, after which they must be removed from the acid, and left in running water for several hours, in order to get rid of every particle of sand.

Having thus satisfied herself that the sponges are thoroughly clean and free from all foreign bodies, the nurse will then put them into a second jar containing a solution of strong liquid ammonia of the strength of half an ounce to the quart of water, and leave them to soak for another twenty-four hours, after which they are again washed in order to get rid of every trace of the solution.

As heat is the principal agent employed in the preparation, they are now put into a steriliser with water sufficient to cover them, and brought slowly

to a temperature of 180° Fahr. This is much below the temperature of boiling water (212° Fahr.), and great care must be taken that the maximum temperature of the water is never greater than 180° Fahr., as to go beyond this limit will certainly mean the destruction of the elasticity of the sponge. They should be kept at this degree of heat for one hour, the nurse all the while watching the thermometer closely.

The spirit lamps are now removed from under the steriliser, and while the water is cooling, the nurse should be engaged in making her hands surgically clean and aseptic.

The sponges are now taken from the steriliser, wrung dry, and, finally, put into a glass jar containing a solution of carbolic acid (1-20). They are now quite ready for use.

The cover of the jar should be put on without delay, and sealed or secured by gummed paper, etc.

In this way neither the jar nor the sponges can be tampered with without the knowledge of the responsible nurse.

These sponges, so prepared, must, before being handed to the operator, be thoroughly rinsed in sterilised water, to get rid of the antiseptic lotion.

If the case has been either septic or of a malignant nature the sponges should be burned immediately after use.

If, however, the case has not been a septic one, the sponges should be first washed in washing soda and water till all blood, ovarian fluid, etc., has been

got rid of, and then soaked for twenty-four hours in the solution of ammonia before mentioned. From that point the preparation is continued as before, the hydrochloric acid stage being, of course, omitted.

The great advantage of the sponge in abdominal surgery is that it can quickly soak up a large quantity of blood, etc., and can also be used over and over again in the course of the same operation.

The swab, on the other hand, cannot soak up much fluid of any kind, nor is it used again in the operation. Yet, in spite of these drawbacks, it has one great advantage over the sponge: it can, by prolonged and powerful sterilising, be made thoroughly aseptic—a condition which, nowadays, is rightly looked upon as an absolute necessity.

A swab, being of a much simpler texture and construction than a sponge, and, by its nature, free from all foreign materials, can be much more easily prepared and with greater satisfaction. The best form of swab is now made of plain white gauze or of guard muslin, cut and folded to the required size, great care being taken that all raw edges are well turned in, and, for further security, stitched with white cotton. Swabs are of various sizes from twelve inches square to one yard, and should be tied in packets of one dozen each.

Another variety of swab, which is found to be of great use, is that made by cutting white worsted into lengths and enclosing a number of these in a

square of gauze, the edges of which are turned in and sewn as above.

These should be made of about the same size as the sponge used for abdominal surgery.

The gauze swabs are sterilised before use either by boiling in water for an hour in an ordinary instrument steriliser, or in specially fitted steam sterilisers. If they have been boiled, the water is allowed to cool, and then the nurse, with aseptic hands, must remove them from the steriliser, and drop them into a jar, containing carbolic acid lotion (1-20), which is then sealed in the same way as in the case of sponges.

Before use they are washed in sterilised water to get rid of the antiseptic lotion, then wrung out and handed to the operator.

In nearly all hospitals, however, the swab steriliser is now in constant use. Special caskets are made to fit the steriliser, and when these are filled with swabs, their lids are closed and their sides opened by sliding along the movable circular outer covering of the side of the casket, thereby exposing a large number of apertures through which the steam gains access to the gauze, rendering it absolutely sterile.

The action of the steam is continued for half an hour at least, and then the caskets are removed from the steriliser. Immediately after removal, the movable side is reversed so as to close the apertures and keep the swabs sterile.

The use of such swabs as these, coupled with

their complete sterilisation by the above method, has made the operation of abdominal section a comparatively safe one, so much so, that nowadays death from septic peritonitis is of rare occurrence.

CHAPTER XVII

THE PREPARATION OF INSTRUMENTS FOR OPERATION

EVEN to the young probationer it is well known that all instruments used for operation must be thoroughly clean.

This is effected by means of sterilisation, a process by which all organisms are destroyed, thereby preventing infection by the instruments when they are introduced into the wound or cavity.

It was discovered many years ago, that a prolonged boiling in water was all that was necessary to ensure safety.

Sterilisers have since been brought into use, and these are of various sizes and construction.

The small steriliser (*see* Fig. 19) so constantly used for minor operations, is heated by a lamp filled with methylated spirit, and furnished with one or two burners, while the large steriliser for major operations is heated by steam. The instruments are placed in a tray with sufficient water to completely cover them, and to prevent rusting a small piece of washing soda is added. The lamp is now lit,

and the instruments are boiled for half an hour at least, after which they are ready for use, and can be lifted out on the tray and arranged in a clean, shallow dish, containing an antiseptic lotion



FIG. 19.—Caird's Steriliser.

or sterilised water. Knives should not be boiled, as great and prolonged heat destroys the temper of the blades. They should rather be allowed to lie in carbolic lotion (1-20) for an hour or more before the operation begins. Corrosive sublimate

lotion should never be allowed to touch instruments, as it imparts to them a coating of the mercury which it contains, and which destroys the nickel plating, producing a very ugly, greyish-black colour.

The nurse who takes charge of the instruments after the sterilisation is completed, and whose duty it may be to hand them to the operator as required, must be extremely careful about the condition of her hands, and must understand that, if they are not surgically clean, they will contaminate the already prepared instruments, and thus render the sterilising useless.

The care of Instruments after Operation.

The nurse's duties do not come to an end with the preparation of instruments. She has now to beware of putting any that have been touched back into the instrument cabinet. They must first be made perfectly clean and ready for boiling at any moment.

Accordingly, they should be well washed with water, soap, and soda, in order to remove all blood stains, etc., and then scoured with some silver paste or powder to restore their brightness.

They should then be carefully inspected, each instrument being again washed with soda and water, and scrubbed with a clean brush. Each pair of scissors, forceps, etc., should be dis-

jointed when possible, and the catches, joints, and teeth, thoroughly scrubbed, and then carefully dried.

Special care should be taken with all tubular instruments—such as cannulae and glass drainage tubes. These, after being cleaned, should have a little ether or absolute alcohol run through them. They should then be dried by passing a long strip of gauze or lint through the channel of the tube or cannula with the aid of a probe or catheter stilette.

Needles should also receive great care, and, after being cleaned and scoured, should all be threaded on a long piece of suture silk and drawn along it several times, to thoroughly clean the eye of each.

The very greatest care should be taken with all intra-uterine instruments, especially with that known as Fritsch's double-channelled catheter. It should be cleaned thoroughly, and a wire or fine stilette passed through it to make sure that no particles of débris, dried blood, etc., are left lying in its many crevices. It should then be boiled, and afterwards, a little ether or absolute alcohol run through to render it thoroughly dry, and thereby prevent the possibility of any rust forming in its channel.

The irrigator or douche-can with its tubing and nozzle should always be carefully cleaned after use.

If all this has been attended to, the nurse can

with perfect satisfaction put the instruments back into the cabinet, feeling sure that nothing more requires to be done to them before being again put into a steriliser on the occasion of the next operation.

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